HATCH
DESIGN
ARCHITECTURE
200 w. 36th st., boise, idaho 83714 • phone 208.475.3204 • www.hatchda.com • email info@hatchda.com

Appeal for Shoemaker Donnelly Storage

May 19, 2026

Valley County Board of County Commissioners
219 North Main Street
PO Box 1350
Cascade, ID 83611

RE: Appeal for Shoemaker Donnelly Storage
13051 Old State Rd, Donnelly, ID 83615

Dear Valley County Board of County Commissioners,

Thank you for your consideration on this matter. Hatch Design Architecture ("Applicant") and Shoemaker Propertied LLC , the property owner, are seeking an appeal of the Valley County Planning and Zoning Commission's ("Commission") decision regarding the extension of CUP 22-34 ("Application"). On May 14, 2026 the Commission held a public hearing, closed the record, and ultimately voted to deny the Application ("Decision").

Project Description and Procedural History

The applicant is proposing a 86, 510 sf self-storage facility (Project). The Project will consist of a mix of RV and boat storage, covered parking, and mini storage. Phase one which includes Building C and Canopy D is scheduled to break ground in June of 2026. The remaining buildings are scheduled to start construction in the spring of 2028. Please see the site plan attached as ***Exhibit A.***

On December 8, 2022 the Commission voted to approve CUP 22-34 (CUP). Todd Jurdana filed an appeal of the Commission's decision on December 19, 2022. On May 23, 2023, the Valley County Board of County Commissioners (Board) entered its Findings of Fact, Conclusions of Law, and Decision approving the Applicant's request for a CUP.

On May 9, 2024 the Commission approved a two-year extension of the CUP through May 23 of 2026.

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The Appeal

Idaho State Law states the following:

"67-6521. Actions by affected persons.

(1) (a) As used herein, an affected person shall mean one having a bona fide interest in real property which may be adversely affected by:

(i) The approval, denial or failure to act upon an application for a subdivision, variance, special use permit and such other similar applications required or authorized pursuant to this chapter;"

The Commission denied the extension on the CUP based on the following criteria:

- Lack of action
- Need for a Traffic Impact Study (TIS)
- Stormwater and drainage concerns
- The application should meet the standards of the new Valley County Code and Comprehensive Plan

Below is an excerpt from Valley Code 9-5H-8.B.3:

> *"With the extension, impacts can be reevaluated and mitigated with the addition of new conditions of approval. A progress report schedule shall be set, with milestones identified. The commission may choose not to approve an extension based upon their reevaluation of the proposed use* ***and lack of activity to complete the project.***"

This is a complex site involving multiple agencies. The additional time taken is to ensure that ground water levels will work with the Project. Also, additional data was needed to finalize the redesign of the Hwy 55 and Old State Road intersection.

The fact that the applicant has been diligently working with planning staff, Valley County Road Dept, Central District Health Department (CDHD), ITD, and the County's Engineer was not accounted d for in the Decision. The County's third-party engineer (Parametrix) has recommended the grading and drainage plans for approval. The Applicant is waiting for the development agreement (DA) to be drafted. The Project is scheduled to break ground on phase 1 once the DA has been recorded.

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Reasons to approve this Appeal

1. **Significant Activity:**

Significant activity has been made on the Project. The Project is a few weeks from breaking ground on the on the horizontal work. Parametrix has recommended the grading and drainage plans for approval. Please see the Approval Letter, dated May 4, 2026 attached as ***Exhibit B,*** Approved Grading and Drainage Plans attached as ***Exhibit C***, and Approved Stormwater Report attached as ***Exhibit D.***

The last step before breaking ground is the DA. One of the components of this agreement is to work out an agreement with the road agencies involved. The traffic impact statement and site plan were sent to the Valley County Road Department and ITD in January of 2026. Please see the attached ITD Email Chain ***Exhibit E*** and Valley County Road Department Email Chain ***Exhibit F***. The draft Valley County Roads agreement is attached as ***Exhibit G***.

The septic permit application was filed on December 12, 2025. Please see the application attached as ***Exhibit H.*** Ground water is required to be monitored through May 2026. Precipitation has been an issue this year and ground water may need to be monitored in 2027 also. Please see the CDHD Inspetor's email attached as ***Exhibit I***.

2. **Need for a TIS:**

The storage use generally does not meet the criteria to require a TIS. ITD did require a traffic impact statement to evaluate the intersection of Hwy 55 and Old State Road. It was determined, with the initial report dated January 31, 2023, that realignment of the intersection would be required. ITD required additional information and a new report was completed on May 31, 2023.

The traffic engineer received a letter from ITD dated June 6, 2024 for additional weekend traffic counts. Please see ITD's letter attached as ***Exhibit J.*** Based on this letter a new report dated July 26, 26 2024 was conducted. This report confirmed that with the addition of weekend traffic that a right-hand turn lane would be warranted. Please see this report attached as ***Exhibit K***.

Due to the concerns of the Commission at the May 14, 2026 hearing, a revision to the previous report was requested to take into account the traffic projections for 2027. Please see the revised report attached as ***Exhibit L***. The Applicant also reached out to ITD for updated comments. ITD has confirmed that a full traffic impact study is not required for this project. They have preliminarily approved the design concept of the intersection realignment and confirmed the need for a right-hand turn lane. Please see the ITD Letter attached as ***Exhibit M*** and conceptual realignment of the intersection attached as ***Exhibit N***.

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3. **Approved Storm Water and Drainage Plans:**
   Parametrix has reviewed and recommended the grading and drainage plans and the stormwater report for approval. The letter states the following:

   "Per our review and in coordination with the owner/engineer, the plans and stormwater calculations meet the required standards;"

4. **New Comprehensive Plan and County Code:**
   This parcel is within Donnelly's area of impact. The land use designation has remained the same for this parcel in latest Valley County comprehensive plan revision. The use is compatible with Donnelly's land use designation of mixed use. The recent approval of the Boulder Creek Apartments further increases the need for storage in this area.

   Valley County Ordinance No. 2025-07 did not change the conditional use standards set forth in chapter 5 of Valley County code. The original approval of the CUP demonstrates that application meets the conditional use standards that are currently in place.

Conclusion

Based on the materials provided, the applicant has demonstrated that significant action and coordination with the appropriate jurisdictions have taken place to start this Project. The Applicant respectfully requests the Board review the Application, grant the Applicant's appeal by approving the Application, and issue a final written decision approving the CUP extension.

Sincerely,

Jeff Hatch, AIA LEED AP
HATCH DESIGN ARCHITECTURE

EXHIBIT A

[*Exhibit commences on following page.*]

SYMBOL LEGEND

- LANDSCAPING SURFACE, SEE LANDSCAPE DRAWINGS
- APPROXIMATE STREAM AND WETLAND AREA LOCATION
- STORMWATER BASIN, SEE CIVIL DRAWINGS
- SNOW STORAGE AREA, SEE CIVIL DRAWINGS
- PROPERTY BOUNDARY LINE
- PROPERTY SETBACK LINE
- ROAD/ACCESS LINE

BUILDING AREA RECAP

PHASE 1	
BUILDING C	32,300 SF
CANOPY D	19,375 SF
PHASE 2	
BUILDING A	10,305 SF
BUILDING B	8,400 SF
BUILDING E	16,130 SF
TOTAL	86,510 SF

ADA UNIT NOTES

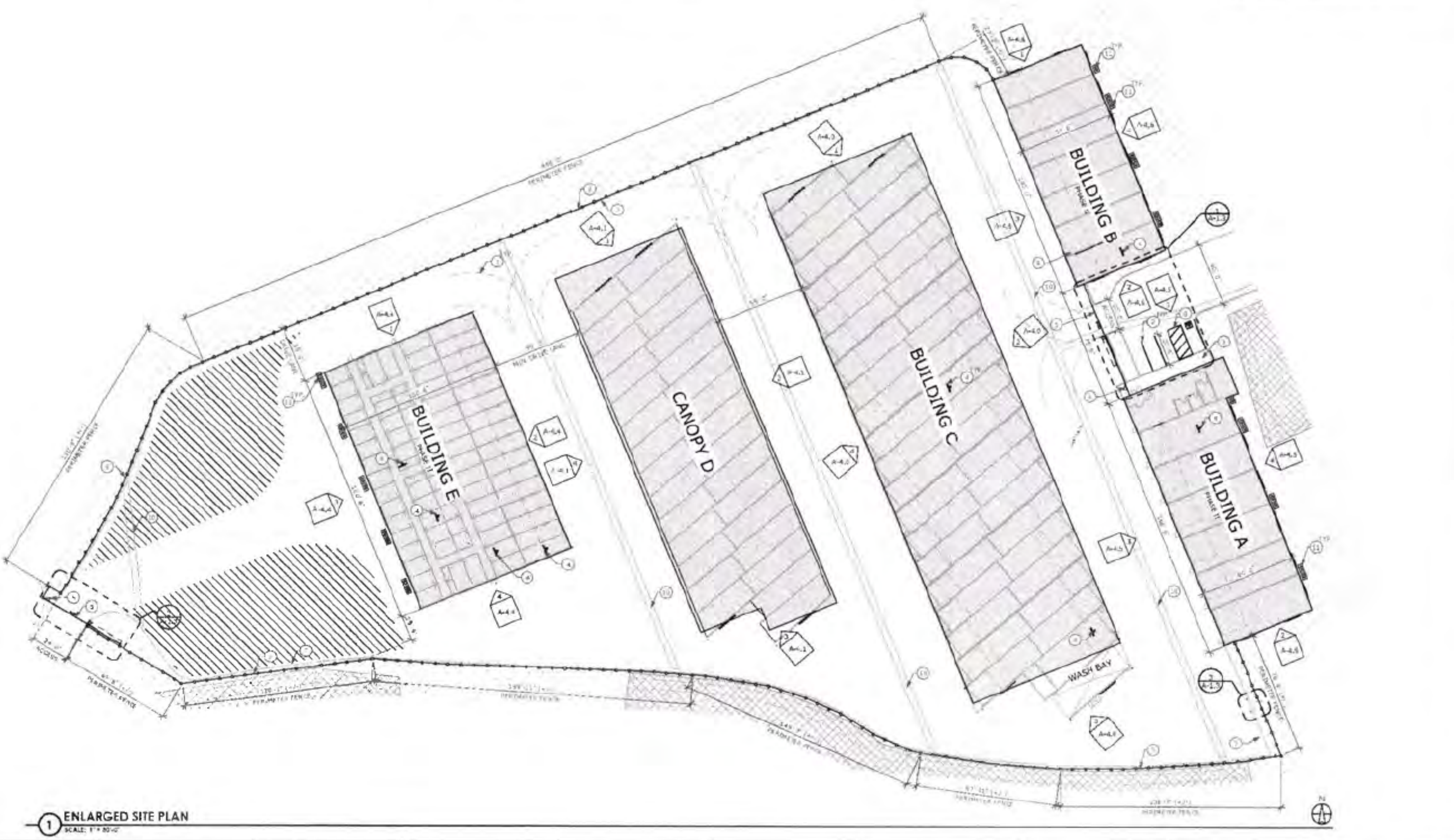
A. A NYLON ROPE MUST BE INSTALLED AT THE BOTTOM OF ROLL UP DOORS WHICH HANGS BETWEEN 15" AND 48" WHEN DOOR IS OPEN AND MUST ALSO CONTAIN A LOOP LARGE ENOUGH TO FIT A FIST.

B. ROLL UP MUST BE TENSIONED AT 5LBS. MAX. FORCE AS IT PERTAINS TO THE CONTINUOUS APPLICATION OF FORCE NECESSARY TO FULLY OPEN A DOOR, NOT THE INITIAL FORCE NEEDED TO OVERCOME THE INERTIA OF THE DOOR

C. LEVEL CHANGES OF FLOOR SURFACES SHALL COMPLY WITH SECTION 303 OF THE 2009 ICC A117.1

KEYNOTE

#	DESCRIPTION
1	FIRE TURN RADIUS, 28' INTERIOR RADIUS AND 48' EXTERIOR RADIUS
2	STANDARD PARKING STALL W/ PAINTED STRIPES, SEE SITE DETAILS
3	SIDEWALK, SEE CIVIL DRAWINGS
4	SYMBOL INDICATES ADA UNIT, SEE ADA UNIT NOTES ON ENLARGED SITE PLAN SHEET
5	SLIDING ACCESS GATE, SEE SITE DETAILS
6	MAN GATE, SEE SITE DETAILS
7	CONCRETE CURB, SEE CIVIL DRAWINGS
8	ADA ACCESSIBLE PARKING STALL W/ PAINTED STRIPES AND ACCESS AISLE, SEE SITE DETAILS
9	PERIMETER FENCING, SEE SITE DETAILS
10	VALLEY GUTTER, SEE CIVIL DRAWINGS
11	MECHANICAL EQUIPMENT, SEE MECHANICAL DRAWINGS



1 ENLARGED SITE PLAN

HATCH DESIGN ARCHITECTURE

75% PROGRESS SET NOT FOR CONSTRUCTION

NEW STORAGE FACILITY FOR:

STORNOW - DONNELLY

13051 OLD STATE ROAD, DONNELLY, ID

DATE:	APRIL 2024
DRAWN BY:	WE
CHECKED BY:	JLH
JOB NUMBER:	22115

ENLARGED SITE PLAN

A-1.1

5/1/2026 11:45:20 AM

EXHIBIT B

[*Exhibit commences on following page.*]

Parametrix No. 314-4875-001 – Task 02.145

Cynda Herrick, AICP, CFM
Valley County Planning and Zoning Director
219 North Main Street
PO Box 1350
Cascade, ID 83611

Re: Donnelly Storage Facility – Revised Grading and Drainage Plans and Stormwater Drainage Report

Dear Cynda:

We have reviewed the above-referenced documents against the current Valley County (VC) Private and Public Road standards. Per our review and in coordination with the owner/engineer, the plans and stormwater calculations meet the required standards; therefore, we are recommending approval of the documents.

Please contact me with any questions or comments.

Sincerely,

PARAMETRIX
Valley County Engineer

Paul Ashton, PE

cc: Kyle Sihon/Nasland
Mike Nasland, PE/Nasland
Cody Janson, PE/Parametri

EXHIBIT C

[*Exhibit commences on following page.*]

DONNELLY STORAGE FACILITY
T.16N., R.3E., SEC 15
DONNELLY, VALLEY COUNTY ID

SPECIAL NOTES

THE FOLLOWING NOTES ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR BY THE ENGINEER OF WORK. THE CITY OR COUNTY ENGINEER'S SIGNATURE ON THESE PLANS DOES NOT CONSTITUTE APPROVAL OF ANY OF THESE NOTES AND THE CITY OR COUNTY WILL NOT BE RESPONSIBLE FOR THEIR ENFORCEMENT.

1. NASLAND ENGINEERING WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY NASLAND ENGINEERING.
2. CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTORS SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, ENGINEER AND GEOTECHNICAL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN THE CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROPERTY, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
3. NEITHER THE CITY NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS.
4. ALL WORK SHALL CONFORM TO THE LATEST STANDARD DRAWINGS OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
5. DURING CONSTRUCTION: THE CONTRACTOR SHALL PROPERLY GRADE ALL EXCAVATED SURFACES TO PROVIDE POSITIVE DRAINAGE AND PREVENT PONDING OF WATER. THEY SHALL CONTROL SURFACE WATER TO AVOID DAMAGE TO ADJOINING PROPERTIES OR TO FINISHED WORK ON THE SITE.
6. WORK PERFORMED WITHOUT BENEFIT OF TESTING AND/OR INSPECTION SHALL BE SUBJECT TO REJECTION AND REMOVAL. ALL COST INCURRED BY THE CONTRACTOR FOR CORRECTING DEFICIENT WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHO PERFORMED THE WORK.
7. THE EXISTENCE AND LOCATION OF UTILITY STRUCTURES AND FACILITIES SHOWN ON THE CONSTRUCTION PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. ATTENTION IS CALLED TO THE POSSIBLE EXISTENCE OF OTHER UTILITY FACILITIES OR STRUCTURES NOT KNOWN OR IN A LOCATION DIFFERENT FROM THAT SHOWN ON THE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN ON THE PLANS AND ANY OTHER EXISTING FACILITIES OR STRUCTURES THAT MAY NOT BE SHOWN.
8. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING FACILITIES (ABOVEGROUND AND UNDERGROUND) WITHIN THE PROJECT SITE SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT THE REVISION OF THE CONSTRUCTION PLANS IF IT IS FOUND THE ACTUAL LOCATIONS ARE IN CONFLICT WITH THE PROPOSED WORK.
9. THE CONTRACTOR SHALL REMOVE AND REPLACE, TO THE SATISFACTION OF THE OWNER, ALL DESTROYED OR DAMAGED SURFACE IMPROVEMENTS WITH IMPROVEMENTS EQUAL OR SUPERIOR.
10. SUBGRADE SHALL BE INSPECTED BY THE PROJECT ENGINEER RESPONSIBLE FOR THE GEOTECHNICAL ASPECTS OF THE PROJECT PRIOR TO INSTALLATION OF FOOTINGS OR SLABS.
11. CONTRACTOR SHALL APPLY FOR ALL FULL OR PARTIAL STREET CLOSURE PERMITS AND PROVIDE TRAFFIC CONTROL PLANS TO BE APPROVED BY ITD, COUNTY AND/OR CITY PRIOR TO MOBILIZATION.
12. WHEN DISCREPANCIES OCCUR BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
13. ALL GRADES SHOWN ON THESE PLANS WERE DESIGNED IN COMPLIANCE WITH THE 2018 IDAHO BUILDING CODE (IBC) AND THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ADA) TO ALLOW FOR CONSTRUCTION TOLERANCES. IT IS THE CONTRACTORS RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THESE CODES. SHOULD A DESIGN QUESTION ARISE OR A FIELD CONDITION PRESENT ITSELF THAT IS DIFFERENT FROM THESE PLANS, WORK SHALL CEASE AND THE CIVIL ENGINEER BE NOTIFIED SO THAT AN ACCEPTABLE SOLUTION CAN BE DETERMINED. THE CONTRACTOR IS ADVISED TO CAREFULLY CHECK ALL PHASES OF WORK RELATING TO CBC AND ADA ACCESS FOR THIS PROJECT. CONSTRUCTION THAT EXCEEDS MAXIMUM OR MINIMUM DIMENSIONS AND SLOPES AS DEFINED BY IBC AND ADA ARE SUBJECT TO REJECTION AND MAY BE REQUIRED TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S SOLE COST. SINCE THE CIVIL ENGINEER OR SURVEYOR CANNOT CONTROL THE EXACT METHODS OR MEANS USED BY THE CONTRACTOR OR THEIR SUB-CONTRACTORS DURING CONSTRUCTION, THE CIVIL ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINAL ACCEPTANCE OF ADA-RELATED ITEMS BY THE AGENCY HAVING JURISDICTION. ANY OTHER AUTHORITY, OR OTHER AFFECTED PARTIES.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATION OF THEIR OWN EARTHWORK QUANTITIES FOR BIDDING AND CONSTRUCTION PURPOSES. SOILS SHALL BE IMPORTED OR EXPORTED AS REQUIRED TO MEET THE GRADES INDICATED ON THIS PLAN.

GEOTECHNICAL REPORT

ALL GRADING AND PAVEMENT SECTIONS MUST BE PERFORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE CITY ORDINANCE, ISPWC AND THE RECOMMENDATIONS AND SPECIFICATIONS SET FORTH IN THE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY NWC OLD STATE ROAD AND EAGLE LANE DONNELLY, ID. PREPARED BY ATLAS TECHNICAL CONSULTANTS DATED OCTOBER 11, 2022.

ABBREVIATIONS

(XXXXXX)	= EXISTING ELEVATION
XXXX.XX	= PROPOSED ELEVATION
EG	= EXISTING GRADE
FG	= FINISHED GRADE
FL	= FLOW LINE
FS	= FINISHED SURFACE
IE/INV	= INVERT ELEVATION
TC	= TOP OF CURB
TG	= TOP OF GRATE
RIM	= TOP OF COVER ELEVATION

SHEET INDEX

CIVIL ENGINEER

MICHAEL NASLAND, PE
NASLAND ENGINEERING
1105 W MAIN STREET, SUITE 580
BOISE, IDAHO 83702
(208) 593-4678

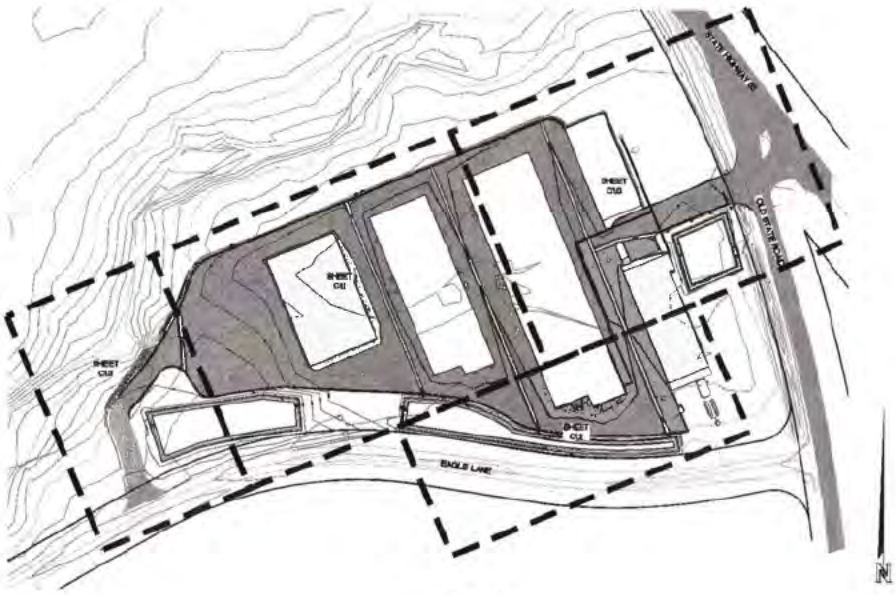
ARCHITECT

JEFF HATCH
HATCH DESIGN ARCHITECTURE
200 W. 36TH STREET
BOISE, IDAHO 83714
(208) 475-3208

GEOTECH

CLINTON WYLLIE
ATLAS TECHNICAL CONSULTANTS
2791 SOUTH VICTORY VIEW WAY
BOISE, IDAHO 83709
(208) 376-4748

VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

HATCH DESIGN ARCHITECTURE
200 W. 36TH ST.
BOISE, IDAHO 83714
PHONE: (208) 475-3208
FAX: (208) 475-3209
WWW.HATCHDESIGNARCHITECTURE.COM

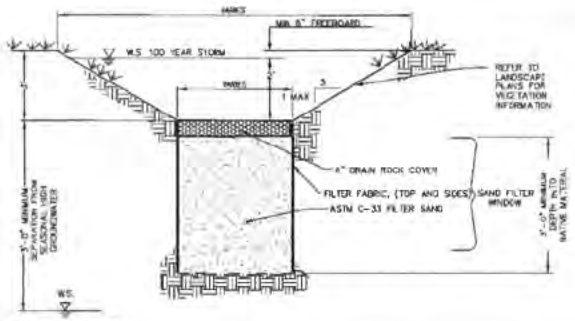
1078
REGISTERED PROFESSIONAL ENGINEER
STATE OF IDAHO
MICHAEL NASLAND

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/18/2026
DRAWN BY: KS
CHECKED BY: MN
JOB NUMBER: 322-1101

COVER SHEET

C0.0



W.S. = WATER SURFACE

NOTES:

1. THE FLOOR OF SURFACE INFILTRATION FACILITY SHALL BE LOCATED A MINIMUM OF 3 FEET ABOVE HIGH GROUNDWATER LEVEL OR BEDROCK.
2. THE FLOOR OF SURFACE INFILTRATION FACILITIES SHALL HAVE A MINIMUM DEPTH OF 3 FEET OF FILTER SAND MEETING THE REQUIREMENTS OF ISPWC SECTION 801.
3. IF NATIVE MATERIAL DIRECTLY BELOW THE FILTER SAND DOES NOT HAVE AN INFILTRATION RATE EQUAL TO OR EXCEEDING THE DESIGN INFILTRATION RATE, 6" UNCRUSHED AGGREGATE, 3" UNCRUSHED AGGREGATE, SAND, OR FILTER SAND MEETING THE REQUIREMENTS OF ISPWC SECTION 801 SHALL BE EXTENDED TO A DEPTH WHERE MATERIAL MEETING THE DESIGN INFILTRATION RATE IS ENCOUNTERED.
4. A MONITORING WELL EXTENDING A MINIMUM OF 4' BELOW THE INFILTRATION BASIN SHALL BE PROVIDED WITHIN 10' OF THE BASIN PERIMETER, PROVIDE SPACE WHEN THE HIGH GROUNDWATER LEVEL IS WITHIN 4 FEET OF THE PROPOSED BOTTOM OF THE POND OR WHEN REQUIRED BY THE DISTRICT ENGINEER. THE MONITORING WELL SHALL BE IN ACCORDANCE WITH THE ISPWC, INCLUDING ISPWC SD-827.
5. DESIGN INFILTRATION: 1.08 IN/HR
6. GROUNDWATER FOUND AT DEPTHS 6.5 FEET BGS PER GEOTECHNICAL ENGINEERING REPORT PREPARED BY ATLAS TECHNICAL CONSULTANTS DATED OCTOBER 11, 2022.

BIORETENTION BASIN DETAIL (1)
NOT TO SCALE

NOTES:

1. REFER TO ISPWC SECTION-800 AND THE "GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY" PREPARED BY ATLAS TECHNICAL CONSULTANTS, LLC. DATED OCTOBER 11, 2022 FOR ADDITIONAL INFORMATION AND INSTALLATION RECOMMENDATIONS.

LIGHT DUTY FLEXIBLE PAVEMENT DETAIL (2)
NOT TO SCALE

NOTES:

1. REFER TO ISPWC SECTION-800 AND THE "GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY" PREPARED BY ATLAS TECHNICAL CONSULTANTS, LLC. DATED OCTOBER 11, 2022 FOR ADDITIONAL INFORMATION AND INSTALLATION RECOMMENDATIONS.

HEAVY DUTY FLEXIBLE PAVEMENT DETAIL (3)
NOT TO SCALE

Nasland

HATCH DESIGN ARCHITECTURE

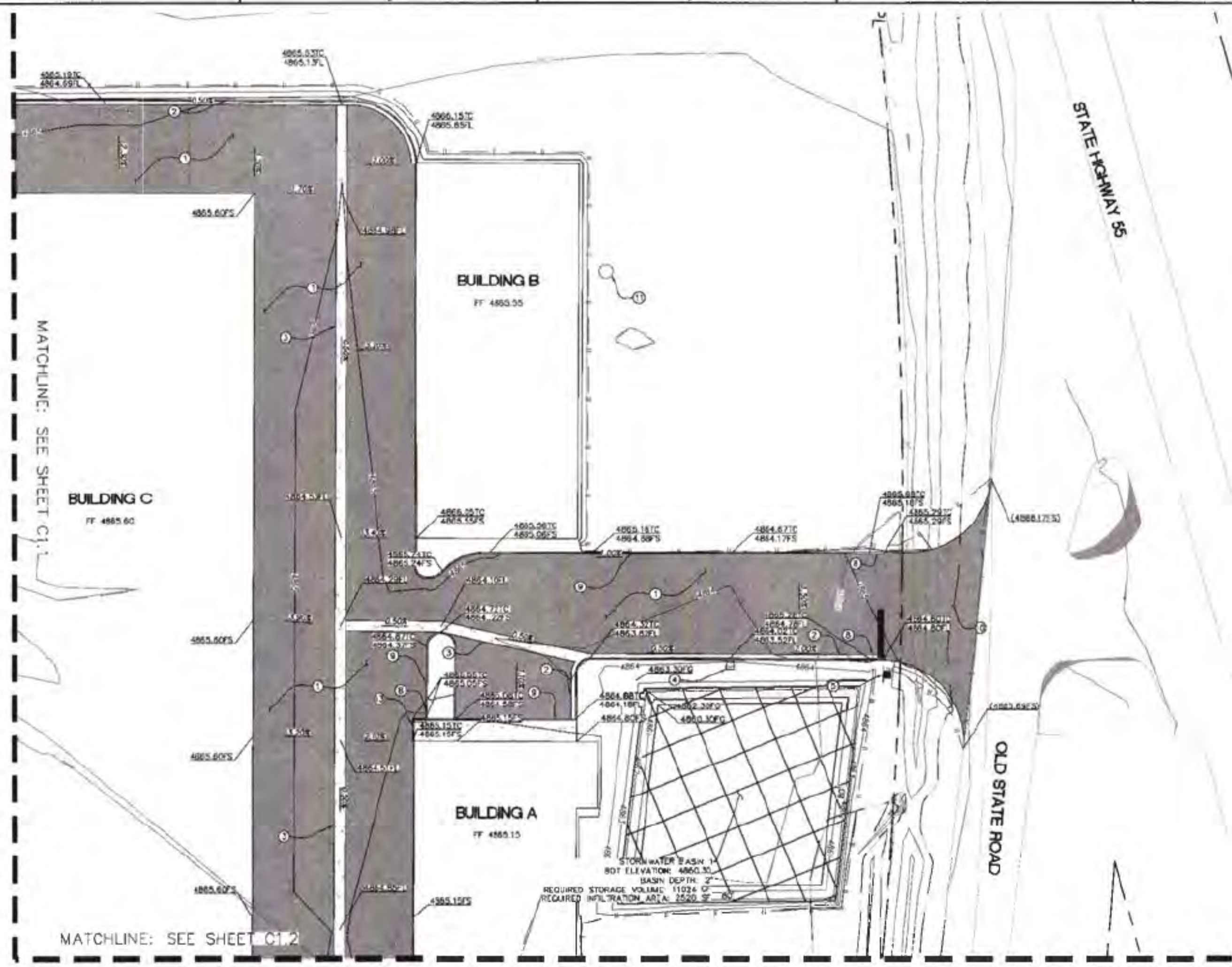
PROFESSIONAL ENGINEER 15576 IDAHO STATE OF IDAHO MICHAEL N. NASLAND

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/18/2026
DRAWN BY: KS
CHECKED BY: MN
JOB NUMBER: 322-110.1

SHEET TITLE
NOTES AND DETAILS

SHEET NO.
C0.1



Nasland
Civil Engineering Consulting Land Planning

CONSTRUCTION NOTES

(1) INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1
(2) INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-701
(3) INSTALL VALLEY GUTTER PER ISPWC SD-708.
(4) INSTALL CURB DRAIN PER ISPWC SD-715.
(5) INSTALL STOP SIGN, STOP BAR AND PAVEMENT MARKINGS PER MUTCD STANDARDS.
(8) INSTALL CURB TERMINUS PER ISPWC SD-707
(9) INSTALL 6" CURB NO GUTTER PER ISPWC SD-701A
(10) INSTALL RURAL DRIVEWAY APPROACH PER ISPWC SD-809
(11) PROPOSED WELL. CONTRACTOR TO COORDINATE EXACT LOCATION AND INSTALLATION WITH WELL DRILLER. WATER SERVICES TO BUILDING TO BE COORDINATED WITH PLUMBING PLANS.
(13) INSTALL 0" CURB NO GUTTER PER ISPWC SD-706.

SCALE 1" = 20'

SOURCE OF TOPOGRAPHY IS A SURVEY COMPLETED BY TERRAMARK LAND SURVEYING

ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS RESOLUTION COMPUTED USING GEOID 18, AND ARE SHOWN IN THE NORTH AMERICAN VERTICAL DATUM OF 1988. NO SUITABLE PUBLISHED BENCHMARK WAS FOUND WITHIN A REASONABLE DISTANCE OF THE SUBJECT PROPERTY.

HATCH DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/11/2026
DRAWN BY: KS
CHECKED BY: MN

GRADING AND DRAINAGE PLAN

C1.0

20 0 20 40 80 80

SCALE 1" = 20'

CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-801.
3. INSTALL VALLEY GUTTER PER ISPWC SD-706
4. INSTALL CURB DRAIN PER ISPWC SD-715

Nasland

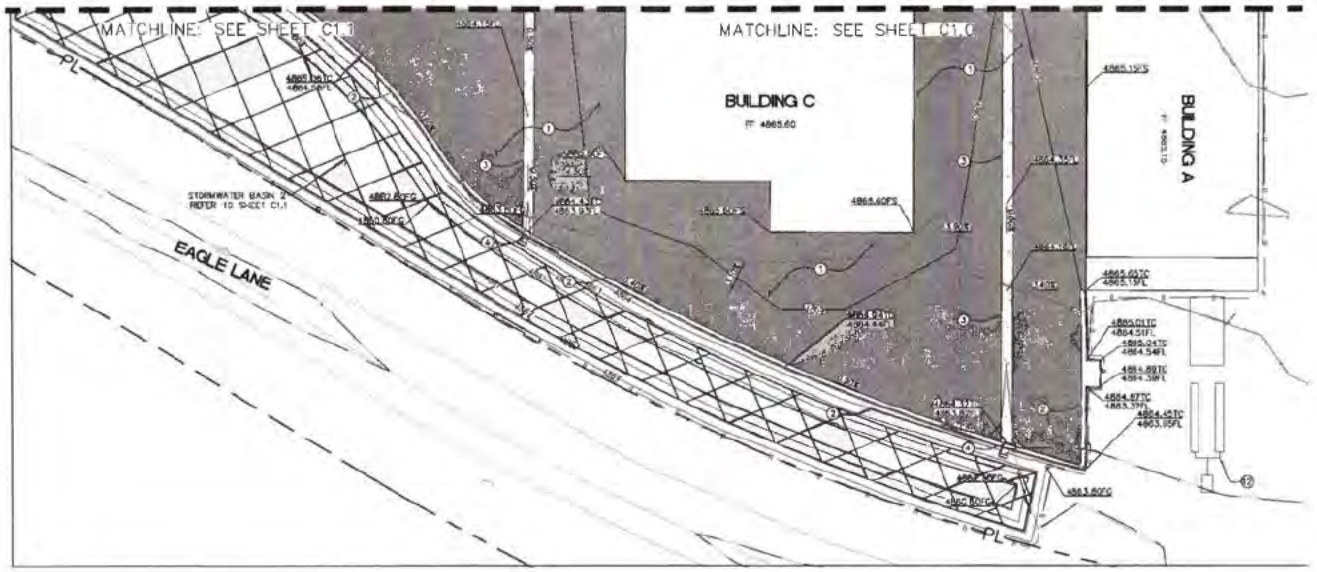
HATCH DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/18/2026
DRAWN BY: RS
CHECKED BY: MH
JOB NUMBER: 322-310

GRADING AND DRAINAGE PLAN

C1.1



20 0 20 40 60 80

SCALE: 1" = 20'

N

Nasland

Civil Engineering Consulting Land Planning

CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1.
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-601.
3. INSTALL VALLEY GUTTER PER ISPWC SD-708.
4. INSTALL CURB DRAIN PER ISPWC SD-715.
10. PROPOSED SEPTIC SYSTEM, CONTRACTOR TO COORDINATE WITH GEOTECHNICAL ENGINEER AND LOCAL HEALTH DISTRICT FOR TESTING, PERMITTING AND INSTALLATION. SEWER SERVICES TO BUILDING TO BE COORDINATED WITH PLUMBING AND SEPTIC PLANS.

MATCH DESIGN ARCHITECTURE

3914 N. 30TH ST.
BOISE, IDAHO 83714
OFFICE: (208) 475-3304
FAX: (208) 475-3305

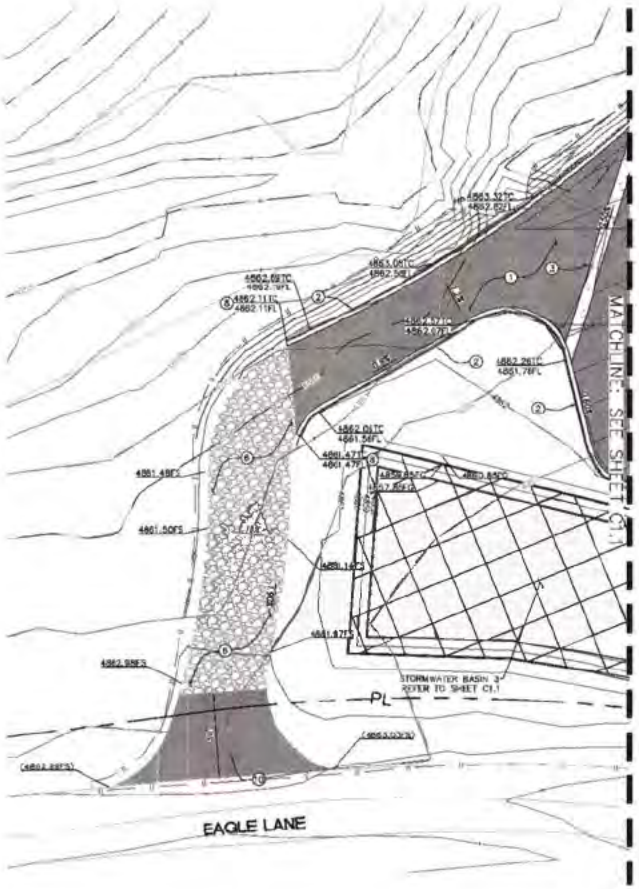
PROFESSIONAL ENGINEER LICENSED 18776 REGISTERED STATE OF IDAHO MICHAEL W. HALEY

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/16/2026
DRAWN BY: KS
CHECKED BY: MH
JOB NUMBER: 322-110.1

GRADING AND DRAINAGE PLAN

C1.2



SCALE 1" = 20'

CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-601.
3. INSTALL VALLEY GUTTER PER ISPWC SD-708.
6. INSTALL TEMPORARY GRAVEL ACCESS ROAD PER ISPWC SD-802.
8. INSTALL CURB TERMINUS PER ISPWC SD-707.
10. INSTALL RURAL DRIVEWAY APPROACH PER ISPWC SD-809.

Nasland

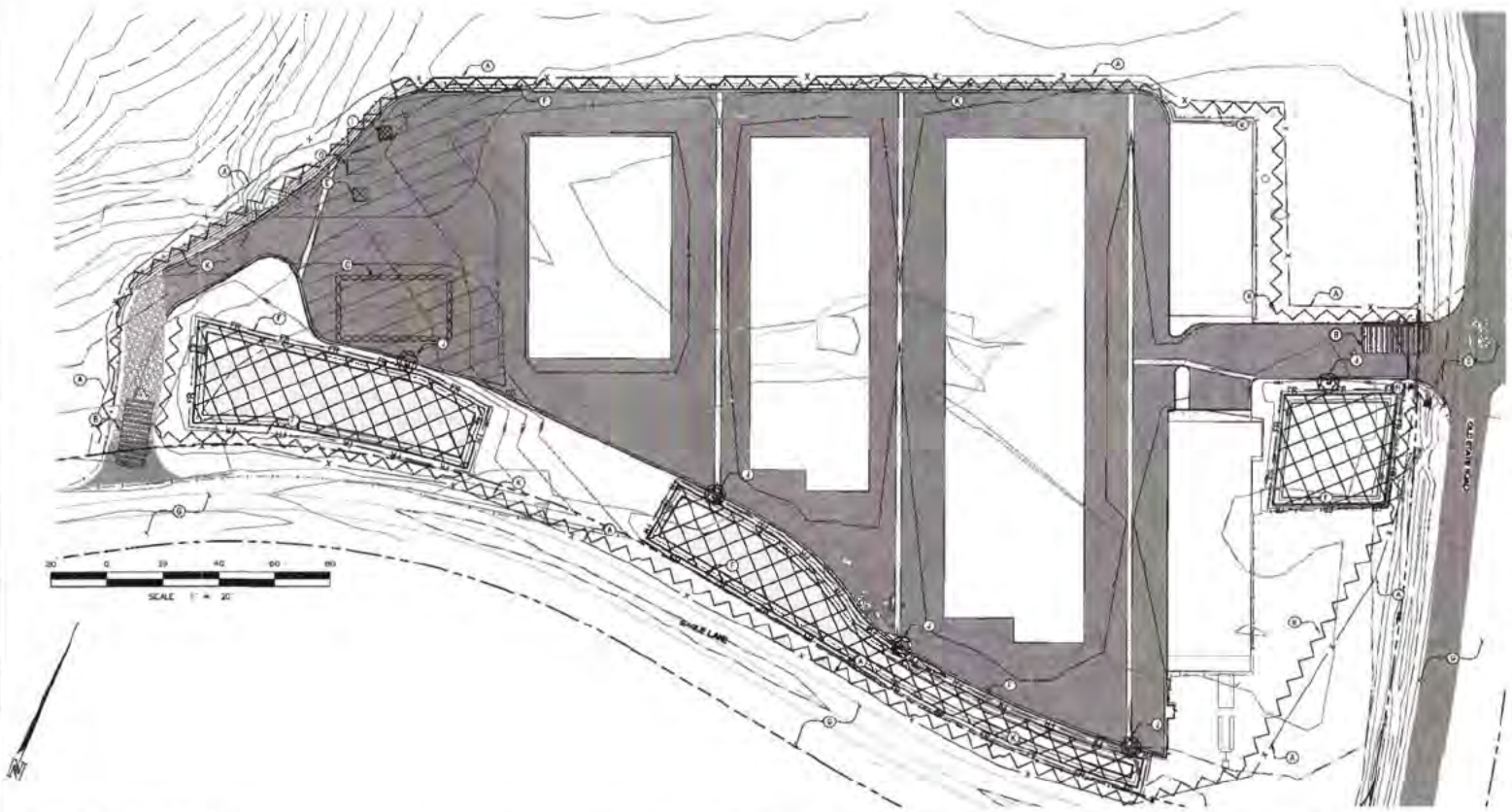
HATCH DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/10/2026
DRAWN BY: KS
CHECKED BY: MH
JOB NUMBER: 322-1004

GRADING AND DRAINAGE PLAN

C1.3



IDAHO CATALOG OF STORM WATER BEST MANAGEMENT PRACTICES

THE FOLLOWING BEST MANAGEMENT PRACTICES (BMP) ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR AND/OR QUALIFIED PERSON BY THE ENGINEER OF WORK. REFER TO THE EROSION AND SEDIMENT CONTROL NARRATIVE AND BMP FACT SHEETS LISTED BELOW FOR ADDITIONAL INFORMATION.

- BMP 1: MINIMIZE LAND DISTURBANCE
- BMP 4: MANAGE IMPERVIOUS SURFACES – DISCONNECT AND REDUCE
- BMP 5: REDUCE ROADWAY AND SIDEWALK SURFACE AREAS
- BMP 31: TOPSOILING
- BMP 32: LANDSCAPING
- BMP 36: CONSTRUCTION TIMING
- BMP 37: STAGING AREAS
- BMP 38: PRESERVE TOPSOIL AND VEGETATION
- BMP 39: CLEARING LIMITS
- BMP 40: VEHICLE SEDIMENT CONTROL
- BMP 42: DUST CONTROL
- BMP 44: STOCKPILE MANAGEMENT
- BMP 45: MINIMIZE SOIL COMPACTION
- BMP 46: SPILL PREVENTION AND CONTROL
- BMP 48: HAZARDOUS MATERIALS MANAGEMENT
- BMP 49: CONCRETE WASTE MANAGEMENT
- BMP 50: SANITARY AND SEPTIC WASTE MANAGEMENT
- BMP 51: SOLID WASTE STORAGE AND DISPOSAL
- BMP 52: MULCHING
- BMP 64: FIBER ROLLS
- BMP 65: SILT FENCE
- BMP 73: DEWATERING
- BMP 74: INLET PROTECTION
- BMP 75: STREET SWEEPING
- BMP 76: STORM WATER SYSTEM CLEANING
- BMP 77: OUTDOOR STORAGE
- BMP 78: FERTILIZER MANAGEMENT
- BMP 79: PESTICIDE MANAGEMENT
- BMP 80: BUILDING AND GROUNDS MAINTENANCE
- BMP 88: NONSTORM WATER DISCHARGES TO DRAINS
- BMP 87: OUTDOOR LOADING AND UNLOADING OF MATERIALS
- BMP 89: CONTAMINATED SOIL MANAGEMENT
- BMP 90: BUILDING REPAIR, REMODELING, AND CONSTRUCTION
- BMP 91: EMPLOYEE TRAINING

EROSION AND SEDIMENT NOTES

TEMPORARY EROSION AND SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR AND/OR QUALIFIED PERSON AS INDICATED BELOW

1. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS ON THIS PLAN IN ADDITION TO THE SWPPP. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
2. THIS EROSION CONTROL PLAN IS INTENDED TO GENERALLY REPRESENT THE EROSION CONTROL PRACTICES AND DEVICES REQUIRED TO PREVENT SEDIMENT FROM LEAVING THE SITE. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED BY THIS EROSION AND SEDIMENT CONTROL PLAN AND SWPPP. ADDITIONAL BMP'S SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION
3. TEMPORARY EROSION CONTROL BMP'S SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE BOISE CITY EROSION CONTROL MANAGER A MINIMUM OF 48-HOURS PRIOR TO COMMENCEMENT OF INSTALLATION OF EROSION CONTROL DEVICES.
4. THE BMP'S SHALL MEET THE CRITERIA AND SPECIFICATIONS OF THE STATE OF IDAHO CATALOG OF STORM WATER BMP'S FOR IDAHO CITIES AND COUNTIES PREPARED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY, AS APPLICABLE. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL IMPLEMENT ADDITIONAL DEVICES AND CONTROLS AS DIRECTED BY THE PERMITTING AGENCY, RESIDENT ENGINEER AND/OR OWNER.
5. THE CONTRACTOR SHALL LIMIT SITE DISTURBANCE IN STRICT ACCORDANCE WITH THIS EROSION AND SEDIMENT CONTROL PLAN. NO UNNECESSARY OR IMPROPER CLEARING AND/OR GRADING SHALL BE PERMITTED.
6. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL INSPECT THE SITE PERIODICALLY, ESPECIALLY AFTER RAIN EVENTS, TO VERIFY THAT NO SEDIMENT LEAVES THE SITE. ALL RUNOFF FROM CONSTRUCTION ACTIVITIES AND FROM RAINFALL SHALL BE RETAINED ON SITE.
7. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL EVENT. THEY SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEMS OR REIMBURSE THE CITY FOR ANY EXPENSES INCURRED BY THE CITY DUE TO CLEANUP ACTIVITIES.
8. THE CONTRACTOR SHALL RESTORE ALL BMP'S TO WORKING ORDER TO THE SATISFACTION OF THE PERMITTING AGENCY, RESIDENT ENGINEER AND/OR OWNER AFTER EACH RAINFALL EVENT.
9. NO DEBRIS, DIRT, AGGREGATE OR EXCAVATION MATERIALS, OR CONSTRUCTION SUPPLIES SHALL BE PLACED WITHIN THE PUBLIC RIGHT-OF-WAY UNLESS PERMITTED BY THE PERMITTING AGENCY. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT. IN ADDITION, PUBLIC SIDEWALKS SHALL NOT BE REMOVED, BLOCKED, OR OTHERWISE RENDERED UNUSABLE BY CONSTRUCTION ACTIVITY, EQUIPMENT OR MATERIALS, OR PORTABLE TOILETS, UNLESS A SAFE, USABLE ALTERNATE WALKWAY, WHICH MEETS THE DESIGN STANDARDS OF THE PERMITTING AGENCY, IS PLACED ON THE SAME SIDE OF THE RIGHT-OF-WAY BY THE CONTRACTOR
10. STOCKPILE EXCAVATION MATERIALS SHALL BE PROTECTED FROM WATER AND WIND EROSION BY COVERING AS APPROPRIATE
11. CLEANING WASTE DISPOSAL PIT SHALL BE USED TO DISPOSE OF ALL SAFE CLEANING WASTES. SOLID WASTE OR HAZARDOUS MATERIALS SHALL NOT BE ALLOWED IN THE CLEANING WASTE DISPOSAL PIT. THE PIT SHALL BE INSPECTED REGULARLY AND ANY HARDENED CONCRETE OR PAINT MATERIALS SHALL BE DISPOSED OF ON A REGULAR BASIS.
12. EXISTING STORM DRAIN CATCH BASINS WITHIN THE VICINITY OF THE PROJECT SITE SHALL BE PROTECTED PRIOR TO THE START OF CONSTRUCTION AND SHALL BE MAINTAINED UNTIL THE SITE HAS BEEN PAVED AND LANDSCAPING HAS BEEN ESTABLISHED. CONTRACTOR SHALL INSTALL "ULTRA DRAINGUARD" CATCH BASIN INSERT OR APPROVED EQUAL.
13. CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTORS SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, ENGINEER AND GEOTECHNICAL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN THE CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROPERTY, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND TRAFFIC CONTROL WITHIN AND AROUND THE PROJECT SITE. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT:
    - 14.1 TRACKING OF MUD AND DIRT ONTO THE ADJACENT ROADWAYS. STREET SWEEPING IS REQUIRED IF TRACKING OCCURS.
    - 14.2 DISPOSAL OF ACCUMULATED SITE CONSTRUCTION WASTE AND LITTER ON SITE
    - 14.3 DISPOSAL OF CONSTRUCTION WASTE WITHIN THE STORM DRAIN SYSTEM.
15. ADJACENT DRIVEWAYS AND STREETS SHALL CONTINUOUSLY REMAIN UNOBSTRUCTED DURING CONSTRUCTION
16. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN AND WITHIN THE SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED OR FINAL STABILIZATION OF THE SITE IS ACHIEVED. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AND REPAIRED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS

EROSION CONTROL LEGEND

CONSTRUCTION FENCING	(A)	X
STABILIZED CONSTRUCTION ENTRANCE/EXIT PER FACT SHEET BMP 40	(B)	
STAGING AREA AND STOCKPILE MANAGEMENT PER FACT SHEETS BMP 37 & 44	(C)	
CLEANING WASTE DISPOSAL PIT PER FACT SHEET BMP 46	(D)	
SANITARY FACILITY PER FACT SHEET BMP 50	(E)	
FIBER ROLL PER FACT SHEET BMP 64	(F)	FR FR FR
STREET SWEEPING PER FACT SHEET BMP 75	(G)	
ESC SIGN POSTING LOCATION	(H)	
CONCRETE WASHOUT PER FACT SHEET BMP 49	(I)	
STORM DRAIN INLET PROTECTION PER FACT SHEET BMP 74	(J)	
SILT FENCE PER FACT SHEET BMP 65	(K)	

HATCH DESIGN ARCHITECTURE
251 N. 8TH ST.
BOISE, IDAHO 83714
PHONE: (208) 475-3266
FAX: (208) 475-3267

PROFESSIONAL ENGINEER LICENSED 16776 STATE OF IDAHO DANIEL NASLAND

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/16/2026
DRAWN BY: ES
CHECKED BY: MN
JOB NUMBER: 322-100
DR. No.:

EROSION AND SEDIMENT CONTROL PLAN

DRAWING NO.
ESCP

EXHIBIT D

[*Exhibit commences on following page.*]

Stormwater Management Plan

Donnely Storage Facility

NWC Old State Road and Eagle Lane
Donnely, ID 83615

Prepared for:

Hatch Design Architecture

200 W. 36th Street
Boise, ID 83714

Prepared by:

Nasland Engineering

Michael Nasland, PE
1109 W Main Street, Ste. 660
Boise, ID 83702
(208) 593-4676

March 17, 2026

Table of Contents

1.0 VICINITY MAP

Map data ©2026 Google

2.0 PROJECT DESCRIPTION

The project site is located in Calley County, Idaho, directly to the south of the City of Donnelly. The site is currently vacant, undeveloped and has an area encompassing approximately 26.97 acres. The proposed project will develop approximately 5.17 acres of the site and consist of 5 buildings to be used as storage facilities and a parking lot. Demolition includes the clearing and grubbing. Construction will include the building of the new structures, installing new AC pavement and sidewalks, curb and gutter, a groundwater well, a septic leech field and the construction of bioretention basins.

3.0 SITE EVALUATION AND EXISTING DRAINAGE

The project site consists of an irregularly shaped parcel bound by Old State Road and Hwy 55 to the east, Eagle lane to the south, and Residential properties with baren land to the north and west. The Mill Slough runs around the northern and western portion of the site. Running in the middle of a the site is an existing drainage canal however it is outside of the area of disturbance for this project and will remain undisturbed. Currently, the property is undeveloped. Access to the site is currently possible from State Hwy 55 and eagle lane. From topographic field survey, the site's elevation ranges from approximately 4,851 feet to 4,870 feet above mean sea level. Historically, the existing topography generally directs surface water to the northwest towards the drainage canal in the middle of the site as well as the north of the site.

Per the geotechnical report, "Soils on site are classed as Site Class D in accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) publication ASCE/SEI 7-16. Structures constructed on this site should be designed per IBC requirements for such a seismic classification. Our investigation did not

reveal hazards resulting from potential earthquake motions including: slope instability, liquefaction, and surface rupture caused by faulting or lateral spreading. Incidence and anticipated acceleration of seismic activity in the area is low."

Per the geotechnical report, "During this field investigation, groundwater was encountered in test pits at depths ranging from 6.4 to 9.8 feet bgs. Soil moistures in the test pits were generally dry to slightly moist within surficial soils. Within the poorly graded sands with clay, soil moistures graded from slightly moist to saturated as the water table was approached and penetrated. In the vicinity of the project site, groundwater levels are controlled in large part by seasonal precipitation and runoff. Maximum groundwater elevations likely occur during late spring to early summer runoff season. During a previous investigation performed in May 2006 approximately 300 feet to the southeast of the site, groundwater was encountered in test pits at depths ranging from 3.4 to 9.0 feet bgs. Additionally, according to Idaho Department of Water Resources (IDWR) well logs within approximately ¼-mile of the site, groundwater was measured at depths ranging from 8 to 24 feet. Atlas recommends that the piezometers installed in test pits 2 and 5 be monitored to determine seasonal high groundwater depths. Additional ground water monitoring can be found in *Appendix E*.

See **Appendix E – Geotechnical Report**, for additional information.

4.0 PROPOSED DRAINAGE

The storm drainage calculations and design for the proposed improvements are intended to meet the requirements of the current Idaho Catalog of Storm Water Best Management Practices (BMPs). The stormwater facilities area designed to treat and store runoff from the 100-year storm event, per the guidance provided by Valley County Engineering Staff. Total storage volumes and peak discharge requirements for the stormwater facilities were designed using the Catalog of Stormwater Best Management Practices for Idaho Cities and Counties. Conveyance systems shall be designed to carry the peak discharge from the 25-year storm event without flooding the streets. Storage volumes for retention facilities shall be based on a 100-year, 1-hour storm event generating 1.15 in/hr. The calculated volumes and discharge rates will be used to determine the size and type of treatment facilities for this project.

The water quality of stormwater runoff for this project will be addressed through both source control measures and treatment of storm water runoff. Applicable source control BMPs are debris collection, street sweeping and roof runoff. The primary method of water quality treatment for this project will be through the use of bioretention basins. Bioretention basins are vegetated depressions that provide a temporary ponding area for infiltration and evapotranspiration. Pollutants are removed by settling as the water infiltrates. Stormwater runoff from the site will sheet flow towards curbs and gutter that discharge to bioretention areas where it will eventually be treated and finally infiltrated.

See **Appendix A – Drainage Basin Map**, for additional information.

5.0 DRAINAGE ANALYSIS

The peak discharge rates and total storage volumes for both the pre-development and post-development site conditions were calculated using methodology outlined in the Catalog of Stormwater Best Management Practices for Idaho Cities and Counties (CATALOG) as well as guidance from County Engineering Staff. The discharge rates and volumes were calculated using the Rational Method, per the Catalog.

5.1 RATIONAL METHOD

The discharge rates and volumes were calculated using the Rational Method given by the following equations:

Peak Discharge Rates: $Q = CIA$

Where: Q = peak discharge (cfs)
C = dimensionless runoff coefficient
I = average rainfall intensity for a duration equal to the time of concentration and for the recurrence interval chosen for design (in/hr)
A = drainage area (ac)

Total Storage Volumes: $V_R = CIA$

Where: V_R = required storage volume (cf)
C = dimensionless runoff coefficient
I = average rainfall based on a 1-hr, 100-year storm event (in)
A = drainage area (ac)

Assumptions and standards used to calculate the peak discharge rates and total storage volumes are as follows:

- The runoff coefficients are based on land use for pre and post-development conditions and were obtained using the Rational Method Runoff Coefficient table in the Catalog. The pre-development condition is flat landscaped areas with a runoff coefficient of 0.20. The post-development condition is a combination of coefficients and a composite Runoff Coefficient was calculated for each Basin. Based on the high level of impervious surfaces on site, each basin has a runoff coefficient of 0.9.

- For the pre and post-development conditions the time of concentration can be estimated by adding up the applicable travel times for saturation, sheet flow, shallow concentrated flow, pipe flow and open channel flow. Based on the small nature of the site, a minimum time of concentration of 10 minutes was used.

- The average rainfall intensities were obtained from the Idaho Transportation Department's Intensity-Duration-Frequency Curves for Zone C based on the time of concentration (duration) and frequency (return period).

    - For the total storage volumes a 1.15 inch average rainfall was used for a 100-year, 1-hour storm event.

See **Appendix D – References**, for additional information.

5.2 EXISTING PEAK DISCHARGE RATE

The 25-year and 100-year peak discharge rates were calculated for the pre-development conditions using the Rational Method discussed in *Section 5.1*.

Pre-Development Rational Method

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Storage Volume (cf)
2	5.18	0.20	10	0.87	0.90	3244.8
5	5.18	0.20	10	1.38	1.43	5146.8
10	5.18	0.20	10	2.11	2.19	7869.5
50	5.18	0.20	10	2.51	2.60	9361.3
50	5.18	0.20	10	2.87	2.97	10704.0

See **Appendix C – Storm Drainage Calculations & Resources**, for additional information.

5.3 PROPOSED PEAK DISCHARGE RATE AND TOTAL STORAGE VOLUME

The 25-year and 100-year peak discharge rates and total storage volumes were calculated for post-development conditions using the Rational Method discussed in *Section 5.1*. These calculations were then used to compare the impacts on existing conditions caused by the redevelopment project.

Post-Development Rational Method - Basin 1

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	1.17	0.90	10	0.87	0.91	1	3287
5	1.17	0.90	10	1.38	1.45	1	5213
10	1.17	0.90	10	2.11	2.21	1	7971
50	1.17	0.90	10	2.51	2.63	1	9482
100	1.17	0.90	10	2.87	3.01	1	10842

Post-Development Rational Method - Basin 2

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	1.82	0.90	10	0.87	1.42	1	5122
5	1.82	0.90	10	1.38	2.26	1	8124
10	1.82	0.90	10	2.11	3.45	1	12421
50	1.82	0.90	10	2.51	4.10	1	14776
100	1.82	0.90	10	2.87	4.69	1	16895

Post-Development Rational Method - Basin 3

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	2.20	0.90	10	0.87	1.73	1	6212
5	2.20	0.90	10	1.38	2.74	1	9854
10	2.20	0.90	10	2.11	4.19	1	15067
50	2.20	0.90	10	2.51	4.98	1	17923
100	2.20	0.90	10	2.87	5.69	1	20494

See **Appendix C – Storm Drainage Calculations & Resources**, for additional information.

5.4 TOTAL STORAGE VOLUME PROVIDED

Bioretention facility sizing is dependent upon infiltration rate of surficial basin soils and maximum allowable time that ponding will be permitted above the basin. Allowable infiltration rates for bioretention facilities range from 0.5 in/hr to 8 in/hr, while maximum allowable ponding time range between 48-72 hours. Per the geotechnical report, infiltration rates are recommended to be 1.08 in/hr; maximum allowable ponding time shall be 48 hours. Accounting for site configuration, depth to ground water, infiltration rate and time of ponding, the bioretention facilities were sized using the following equation:

Total Storage Volume Provided: $V_P = AD$

Where: V_P = provided storage volume (cf)
A = surface area of bioretention facility (sf)
D = ponding depth (ft)

See **Appendix C – Storm Drainage Calculations & Resources**, for additional information.

5.5 DRAINAGE CONCLUSION

The purpose of this report was to analyze the existing drainage patterns and compare them to the newly proposed ones. The intent was to effectively carry the runoff associated with the 100-year storm event to outlet points and prevent any severe ponding and flooding from occurring. Based on the storm event analysis, this redevelopment project will be able to capture, treat and infiltrate the storm water onsite after project completion. By directing stormwater runoff towards drainage facilities, the proposed flow rates will not negatively impact the surrounding areas. Water quality treatment for this project will be achieved through the use of source control measures, sand & grease traps and bioretention basins.

6.0 OPERATION AND MAINTENANCE PLAN

This Operation and Maintenance (O&M) Plan should be used as a reference to the owner and/or operator for properly operating and maintaining onsite stormwater systems. Stormwater systems that are properly operated and maintained not only function better and provide better stormwater treatment, but also reduce maintenance costs and liability problems. This O&M Plan provides guidance for inspecting the stormwater systems, performing maintenance on the systems and properly disposing of wastes derived from the systems' maintenance and cleaning activities. It is the homeowners association's responsibility to retain the inspection and maintenance records.

6.1 STORMWATER INSPECTION AND MAINTENANCE ACTIVITIES

Frequent, thorough and consistent inspections are important to the successful operation and maintenance of a stormwater system. Inspections reveal the operational status of the system, identify needed routine and non-routine maintenance actions and provide the information to update the O&M plan. Routine maintenance is the maintenance an individual performs on a stormwater system to ensure that the stormwater system is functioning as designed and that the system aesthetics are well maintained, while non-routine maintenance is the maintenance an individual performs as a result of a catastrophic event, such as a hazardous chemical spill or inclement weather. It is recommended to inspect stormwater systems after construction, at least twice a year (before and after the summer months) and after any

rainstorm event that produces more than 0.5 inches of rainfall. Inspections may need to be done more frequently if seasons are wetter than usual.

The type and frequency of maintenance for a specific stormwater system is determined by inspection results and the maintenance schedule. Routine maintenance should be performed in accordance with system design information and safety procedures. In addition to routine maintenance, the stormwater system may require non-routine maintenance. If illegal dumping into the system, accidental spills, or massive sediment and debris inflows occurs, it will be necessary to perform non-routine maintenance.

If there is an accidental spill, isolate the spill to keep it from reaching water bodies and groundwater. Check the stormwater system flow control points, such as grates, valves, orifices, and outlet pipes, to see if those points are closed to help isolate the spill. Purchase spill kits to keep onsite and place them in areas that are easily accessible by maintenance personnel. If the spill consists of flammable or hazardous materials, call the Valley County Wildfire Mitigation Department at (208) 382-7145 for assistance. If the spill contains hazardous materials, it may also be preferable to contact a qualified environmental consultant who specializes in spill containment, cleanup and disposal. These consultants may be found by searching on the internet for "Idaho Environmental Services".

The owner or operator should keep adequate records on the operation, inspection and maintenance of the stormwater system. Record keeping provides a useful record of past operation and maintenance practices and also provides the owner or operator documentation that the stormwater system has been properly operated and maintained. Information that can be included in records includes the O&M plan, maintenance documentation, stormwater system photos, invoice for materials or work contracted, copies of permits, and laboratory analysis results which characterize clean-out wastes.

Most stormwater system wastes consist of trash, leaves, grass, and sediment and should be considered non-hazardous waste. Non-hazardous sediment and debris can be routinely disposed of at the local landfill, in accordance with state and local solid waste regulations. If using a waste disposal service other than normal garbage disposal, provide the waste hauler with documentation that the facility's stormwater system sediment is not hazardous waste. Any questions concerning the disposal of sediment with solid waste should be directed towards the waste hauler or the Valley County Public Works Department. Stormwater system maintenance wastes must be disposed at an authorized solid waste facility. Idaho Waste Systems is a regional waste facility that is certified to receive non-hazardous liquid wastes. Hazardous sediment or liquid in the facility's stormwater system must be disposed of as hazardous waste in accordance with state and federal regulations.

Minimum Operation & Maintenance Procedures

Description	Quantity	Inspection Frequency	Maintenance Frequency	Maintenance Method
Bioretention Basin	3	Biannually & After Storms	As Needed	Remove Trash & Debris, Aerate & Amend Soils, Mow Grass Regularly

In addition to the procedures listed above and in the Appendices the following post-construction maintenance practices must be maintained for the life of the project:

- Stabilization: All planted slopes and other vegetated areas shall be inspected prior to October 1st of each year and after major rainfall events (more than 0.5 inches) and repair and replanted as needed.

- Structural Practices: Gutters, roof drains, inlets, cleanouts and storm drains shall be inspected prior to October 1st of each year and after major rainfall events (more than 0.5 inches). Repairs and replacements shall be made as needed and recorded in the inspection and maintenance log in perpetuity.
- Operation and Maintenance Funding: Stormwater facility management measures are the responsibility of the developer until the transfer of respective sites to home builders, individual owners, homeowners associations and/or local agencies. At that time the new owners shall assume responsibility for their respective portions of the development.

See **Appendix F – Structural Control Assessment Tables and BMPs** and **Appendix G – Inspection and Maintenance Form**, for additional information.

6.2 SOURCE CONTROL BEST MANAGEMENT PRACTICES (BMPS)

Land development generally alters the natural conditions of the land by removing vegetative cover, compacting soil, and/or placement of concrete, asphalt, or other impervious surfaces. These impervious surfaces facilitate transportation of urban pollutants in stormwater runoff (such as pesticides, petroleum hydrocarbons, heavy metals, and pathogens) that are otherwise not generally found in high concentrations in the runoff from the natural environment. Pollutants that accumulate on impervious surfaces and actively landscaped pervious surfaces may contribute to elevated levels of pollutants in runoff relative to the natural condition.

In order to mitigate this source control best management practices (BMPs) must be implemented to address specific sources of pollutants. Source control BMPs avoid and reduce pollutants in stormwater runoff. Everyday activities, such as recycling, trash disposal and irrigation, generate pollutants that have the potential to drain to the stormwater system. Source control BMPs are defined as an activity that reduces the potential for stormwater runoff to come into contact with pollutants. Activities include an administrative action, design of a structural facility, usage of alternative materials, and operation, maintenance and inspection of an area. Where applicable and feasible, all development projects are required to implement source control BMPs.

This project will implement all source control BMPs that are applicable to the development. Both structural and nonstructural controls and practices for pollution prevention and non-stormwater storm drain uses will be implemented. The controls and practices applicable to this development are general stormwater pollution prevention controls and practices, properly cleaning and outdoor maintenance controls and practices, and stormwater system operations and maintenance. The following discharge activities shall abide by the disposal recommendations listed in *Appendix F*:

- Clean-up wastewater from sewer back-up
- Leaking garbage dumpsters/cans
- Wash water from cleaning garbage dumpsters/cans
- Exterior building and property cleaning
- Pesticide use
- Garden clippings and tree trimmings
- Storm drain system cleaning

See **Appendix F – Structural Control Assessment Tables and BMPs**, for additional information.

6.3 SAFETY INFORMATION

Per state and federal regulations the individual inspecting or maintaining the stormwater system should always consider safety as the first priority. The inspector should have the proper safety equipment (heavy duty gloves, steel-toed boots, first aid kits, etc.) and training before conducting any inspections, and all work should be done in accordance with current OSHA regulations. If the stormwater system inspection reveals a safety problem, then it may be necessary to modify site activities to reduce or eliminate the safety risk. The following is a list of safety precautions an individual should be aware of when inspecting or maintaining stormwater systems:

- Never enter a confined space unless possessing proper Occupational Health and Safety Administration (OSHA) training. Do not enter any confined space unless the atmosphere has been checked and proper safety equipment is worn and/or erected. Never enter pipes or conduits without another individual present. If the structural strength of a pipe or conduit is questionable, then do not enter the pipe or conduit at all.
- Check the ventilation in the stormwater system before using any type of ignitable materials. Some stormwater systems may be sealed and have poor ventilation, posing a safety risk to the inspector if the vapor comes in contact with an open flame. Also, be sure to allow the stormwater system to vent for a period of time if a peculiar odor is present.
- Wear gloves if any mechanical parts or structural components are going to be handled. Wearing gloves not only reduces the risk of getting cuts and abrasions, but also reduces the exposure of pollutants to the skin.
- Lift manhole covers or other structural covers (trash racks, access covers, etc.) carefully. These items can be very heavy and slippery if wet. Also, learn the correct way to lift heavy items to avoid back injury.
- Check the water depth of the system before stepping in the water. The water may be deeper than originally thought or there may be steep slopes below the water line.
- Be aware that nails, broken glass, or other sharp debris may be in the stormwater system and can cause injury. Wearing the proper safety clothing will reduce the safety risk associated with coming in contact with these objects.
- Check for poison ivy, poison oak, or other poisonous plants when inspecting ponds or other large stormwater systems. Inform the individual who will perform maintenance on the system that these plants are present.
- Look where walking. Rodent holes may be present around ponds or constructed wetlands. Some holes may be partially covered and not easily seen at first glance.
- Operate equipment safely and in accordance with manufacturer's specifications. Equipment operators should be aware of site personnel at all times to avoid causing injury to others.
- Call 811 two to ten business days before you dig and contact utility companies prior to excavating a site.
- Underground utility wires may be present. Cover or clearly mark excavated areas that cannot be filled in at the end of the day to alert site employees of the potential risk. Also, be aware of overhead electrical wires that could come in contact with maintenance equipment.
- Identify where to dispose of removed sediment or wastes prior to cleaning the stormwater system. Use shovels, trowels, or a high-suction vacuum to remove wastes. Do not clean out sediment or waste with bare hands; it may be hazardous. Place the sediment or waste in a secure area.
- Take caution when mowing detention ponds, retention ponds, or other stormwater systems

that, by design, have steep slopes.

6.4 O&M PLAN CONCLUSION

This Operation and Maintenance Plan is intended to provide the owner and/or operator with information on how to properly operate, inspect, and maintain the stormwater system. Stormwater systems that are properly operated and maintained function better, provide better stormwater treatment, and reduce maintenance costs and liability problems. The O&M plan provides guidance for conducting facility and stormwater system inspections, maintaining stormwater structural controls, appropriate safety procedures, and properly disposing of maintenance wastes. Additional information is available in the Idaho Catalog of Storm Water Best Management Practices or by contacting Valley County Public Works Department.

APPENDICES

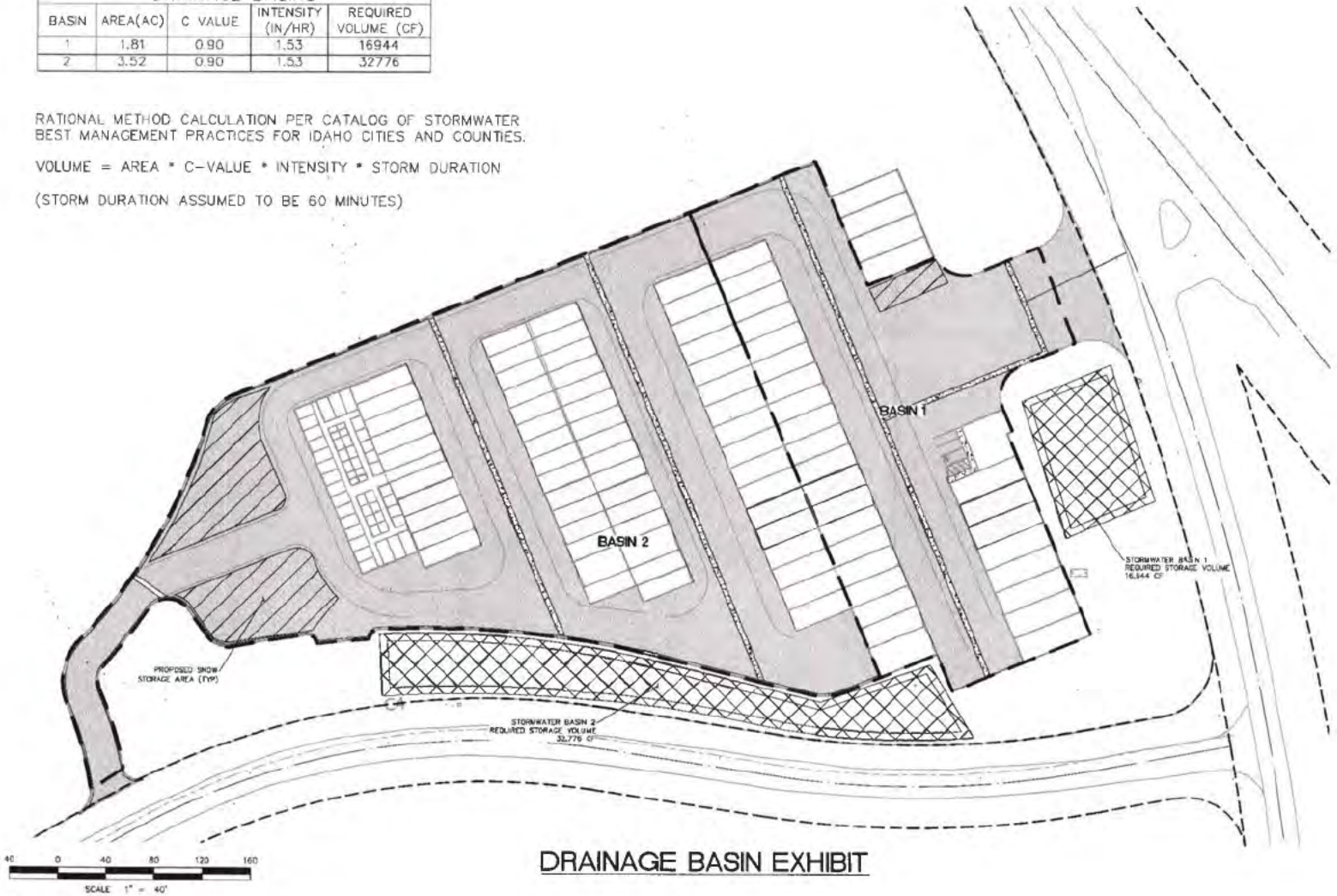
APPENDIX A – DRAINAGE BASIN MAP

DRAINAGE BASINS				
BASIN	AREA(AC)	C VALUE	INTENSITY (IN/HR)	REQUIRED VOLUME (CF)
1	1.81	0.90	1.53	16944
2	3.52	0.90	1.53	32776

RATIONAL METHOD CALCULATION PER CATALOG OF STORMWATER BEST MANAGEMENT PRACTICES FOR IDAHO CITIES AND COUNTIES.

VOLUME = AREA * C-VALUE * INTENSITY * STORM DURATION

(STORM DURATION ASSUMED TO BE 60 MINUTES)



DRAINAGE BASIN EXHIBIT

TOTAL PROPOSED SNOW STORAGE AREA:
15,000 SF

APPENDIX B – DESIGN PLANS

DONNELLY STORAGE FACILITY
T.16N., R.3E., SEC 15
DONNELLY, VALLEY COUNTY ID

SPECIAL NOTES

THE FOLLOWING NOTES ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR BY THE ENGINEER OF WORK. THE CITY OR COUNTY ENGINEER'S SIGNATURE ON THESE PLANS DOES NOT CONSTITUTE APPROVAL OF ANY OF THESE NOTES AND THE CITY OR COUNTY WILL NOT BE RESPONSIBLE FOR THEIR ENFORCEMENT.

1. NASLAND ENGINEERING WILL NOT BE RESPONSIBLE FOR OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY NASLAND ENGINEERING.
2. CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTORS SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, ENGINEER AND GEOTECHNICAL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN THE CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROPERTY, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
3. NEITHER THE CITY NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS.
4. ALL WORK SHALL CONFORM TO THE LATEST STANDARD DRAWINGS OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
5. DURING CONSTRUCTION: THE CONTRACTOR SHALL PROPERLY GRADE ALL EXCAVATED SURFACES TO PROVIDE POSITIVE DRAINAGE AND PREVENT PONDING OF WATER. THEY SHALL CONTROL SURFACE WATER TO AVOID DAMAGE TO ADJOINING PROPERTIES OR TO FINISHED WORK ON THE SITE.
6. WORK PERFORMED WITHOUT BENEFIT OF TESTING AND/OR INSPECTION SHALL BE SUBJECT TO REJECTION AND REMOVAL. ALL COST INCURRED BY THE CONTRACTOR FOR CORRECTING DEFICIENT WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHO PERFORMED THE WORK.
7. THE EXISTENCE AND LOCATION OF UTILITY STRUCTURES AND FACILITIES SHOWN ON THE CONSTRUCTION PLANS WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS ATTENTION IS CALLED TO THE POSSIBLE EXISTENCE OF OTHER UTILITY FACILITIES OR STRUCTURES NOT KNOWN OR IN A LOCATION DIFFERENT FROM THAT SHOWN ON THE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN ON THE PLANS AND ANY OTHER EXISTING FACILITIES OR STRUCTURES THAT MAY NOT BE SHOWN.
8. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING FACILITIES (ABOVEGROUND AND UNDERGROUND) WITHIN THE PROJECT SITE SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT THE REVISION OF THE CONSTRUCTION PLANS IF IT IS FOUND THE ACTUAL LOCATIONS ARE IN CONFLICT WITH THE PROPOSED WORK.
9. THE CONTRACTOR SHALL REMOVE AND REPLACE, TO THE SATISFACTION OF THE OWNER, ALL DESTROYED OR DAMAGED SURFACE IMPROVEMENTS WITH IMPROVEMENTS EQUAL OR SUPERIOR.
10. SUBGRADE SHALL BE INSPECTED BY THE PROJECT ENGINEER RESPONSIBLE FOR THE GEOTECHNICAL ASPECTS OF THE PROJECT PRIOR TO INSTALLATION OF FOOTINGS OR SLABS.
11. CONTRACTOR SHALL APPLY FOR ALL FULL OR PARTIAL STREET CLOSURE PERMITS AND PROVIDE TRAFFIC CONTROL PLANS TO BE APPROVED BY ITD, COUNTY AND/OR CITY PRIOR TO MOBILIZATION.
12. WHEN DISCREPANCIES OCCUR BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
13. ALL GRADES SHOWN ON THESE PLANS WERE DESIGNED IN COMPLIANCE WITH THE 2018 IDAHO BUILDING CODE (IBC) AND THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ADA) TO ALLOW FOR CONSTRUCTION TOLERANCES. IT IS THE CONTRACTORS RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THESE CODES. SHOULD A DESIGN QUESTION ARISE OR A FIELD CONDITION PRESENT ITSELF THAT IS DIFFERENT FROM THESE PLANS, WORK SHALL CEASE AND THE CIVIL ENGINEER BE NOTIFIED SO THAT AN ACCEPTABLE SOLUTION CAN BE DETERMINED. THE CONTRACTOR IS ADVISED TO CAREFULLY CHECK ALL PHASES OF WORK RELATIVE TO IBC AND ADA ACCESS FOR THIS PROJECT. CONSTRUCTION THAT EXCEEDS MAXIMUM OR MINIMUM DIMENSIONS AND SLOPES AS DEFINED BY IBC AND ADA ARE SUBJECT TO REJECTION AND MAY BE REQUIRED TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S SOLE COST SINCE THE CIVIL ENGINEER OR SURVEYOR CANNOT CONTROL THE EXACT METHODS OR MEANS USED BY THE CONTRACTOR OR THEIR SUB-CONTRACTORS DURING CONSTRUCTION, THE CIVIL ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINAL ACCEPTANCE OF ADA-RELATED ITEMS BY THE AGENCY HAVING JURISDICTION, ANY OTHER AUTHORITY, OR OTHER AFFECTED PARTIES.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATION OF THEIR OWN EARTHWORK QUANTITIES FOR BIDDING AND CONSTRUCTION PURPOSES. SOILS SHALL BE IMPORTED OR EXPORTED AS REQUIRED TO MEET THE GRADES INDICATED ON THIS PLAN.

GEOTECHNICAL REPORT

ALL GRADING AND PAVEMENT SECTIONS MUST BE PERFORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE CITY ORDINANCE, ISPWC AND THE RECOMMENDATIONS AND SPECIFICATIONS SET FORTH IN THE GEOTECHNICAL INVESTIGATION REPORT ENTITLED:

GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY NWC OLD STATE ROAD AND EAGLE LANE DONNELLY, ID. PREPARED BY ATLAS TECHNICAL CONSULTANTS DATED OCTOBER 11, 2022.

ABBREVIATIONS

(XXXX.XX)	= EXISTING ELEVATION
XXXX.XX	= PROPOSED ELEVATION
EG	= EXISTING GRADE
FG	= FINISHED GRADE
FL	= FLOW LINE
FS	= FINISHED SURFACE
IE/INV	= INVERT ELEVATION
TC	= TOP OF CURB
TG	= TOP OF GRATE
RIM	= TOP OF COVER ELEVATION

SHEET INDEX

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NASLAND ENGINEERING
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(208) 593-4878

ARCHITECT

JEFF HATCH
HATCH DESIGN ARCHITECTURE
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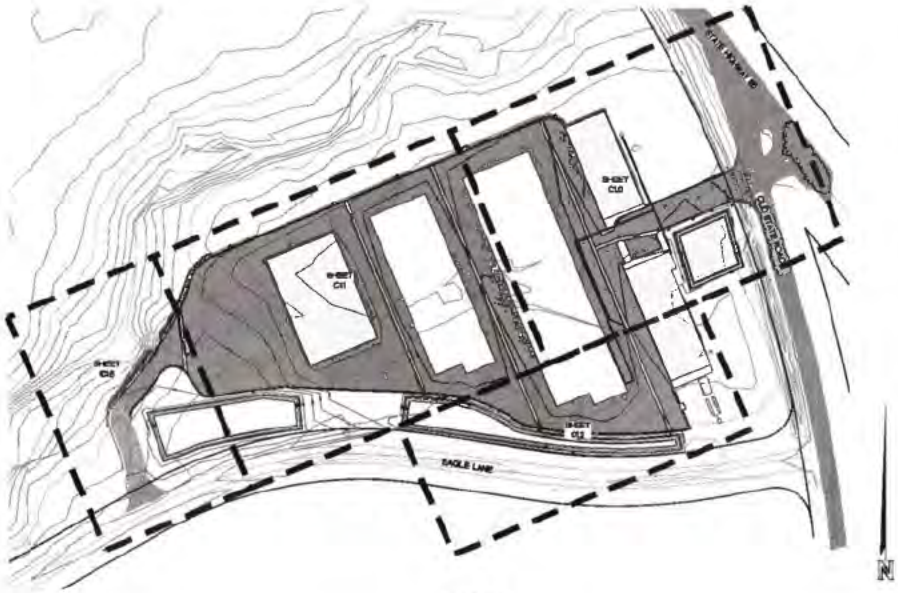
(208) 475-3206

GEOTECH

CLINTON WYLLIE
ATLAS TECHNICAL CONSULTANTS
2781 SOUTH VICTORY VIEW WAY
BOISE, IDAHO 83709
(208) 376-4748

VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

Nasland
Civil Engineering Surveying Land Planning

HATCH DESIGN ARCHITECTURE
JEFF HATCH
200 W. 36TH STREET
BOISE, IDAHO 83714
(208) 475-3206

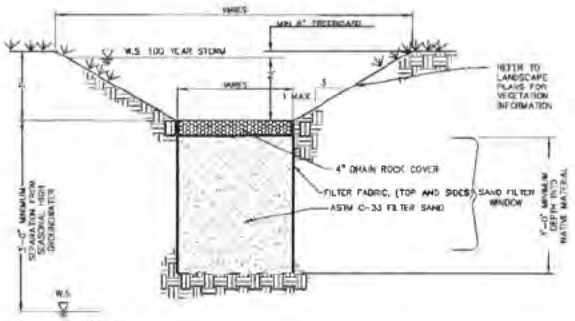
PROFESSIONAL ENGINEER
16776
STATE OF IDAHO
MICHAEL NASLAND

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/14/2026
DRAWN BY: RS
CHECKED BY: MN
JOB NUMBER: 322-1101

COVER SHEET

C0.0



W.S. = WATER SURFACE

NOTES:

1. THE FLOOR OF SURFACE INFILTRATION FACILITY SHALL BE LOCATED A MINIMUM OF 3 FEET ABOVE HIGH GROUNDWATER LEVEL OR BEDROCK.
2. THE FLOOR OF SURFACE INFILTRATION FACILITIES SHALL HAVE A MINIMUM DEPTH OF 3 FEET OF FILTER SAND MEETING THE REQUIREMENTS OF ISPWC SECTION 801.
3. IF NATIVE MATERIAL DIRECTLY BELOW THE FILTER SAND DOES NOT HAVE AN INFILTRATION RATE EQUAL TO OR EXCEEDING THE DESIGN INFILTRATION RATE, 6" UNCRUSHED AGGREGATE, 3" UNCRUSHED AGGREGATE, SAND, OR FILTER SAND MEETING THE REQUIREMENTS OF ISPWC SECTION 801 SHALL BE EXTENDED TO A DEPTH WHERE MATERIAL MEETING THE DESIGN INFILTRATION RATE IS ENCOUNTERED.
4. A MONITORING WELL EXTENDING A MINIMUM OF 4' BELOW THE INFILTRATION BASIN SHALL BE PROVIDED WITHIN 10' OF THE BASIN PERIMETER. PROVIDE SPACE WHEN THE HIGH GROUNDWATER LEVEL IS WITHIN 4 FEET OF THE PROPOSED BOTTOM OF THE POND OR WHEN REQUIRED BY THE DISTRICT ENGINEER. THE MONITORING WELL SHALL BE IN ACCORDANCE WITH THE ISPWC, INCLUDING ISPWC SD-827.
5. DESIGN INFILTRATION: 1.08 IN/HR
6. GROUNDWATER FOUND AT DEPTHS 8.5 FEET BGS PER GEOTECHNICAL ENGINEERING REPORT PREPARED BY ATLAS TECHNICAL CONSULTANTS DATED OCTOBER 11, 2022.

BIORETENTION BASIN DETAIL (1)
NOT TO SCALE

NOTES:

1. REFER TO ISPWC SECTION-800 AND THE "GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY" PREPARED BY ATLAS TECHNICAL CONSULTANTS, LLC, DATED OCTOBER 11, 2022 FOR ADDITIONAL INFORMATION AND INSTALLATION RECOMMENDATIONS.

LIGHT DUTY FLEXIBLE PAVEMENT DETAIL (2)
NOT TO SCALE

NOTES:

1. REFER TO ISPWC SECTION-800 AND THE "GEOTECHNICAL INVESTIGATION SHOEMAKER DONNELLY" PREPARED BY ATLAS TECHNICAL CONSULTANTS, LLC, DATED OCTOBER 11, 2022 FOR ADDITIONAL INFORMATION AND INSTALLATION RECOMMENDATIONS.

HEAVY DUTY FLEXIBLE PAVEMENT DETAIL (3)
NOT TO SCALE

Nasland
Civil Engineering Consulting Land Planning

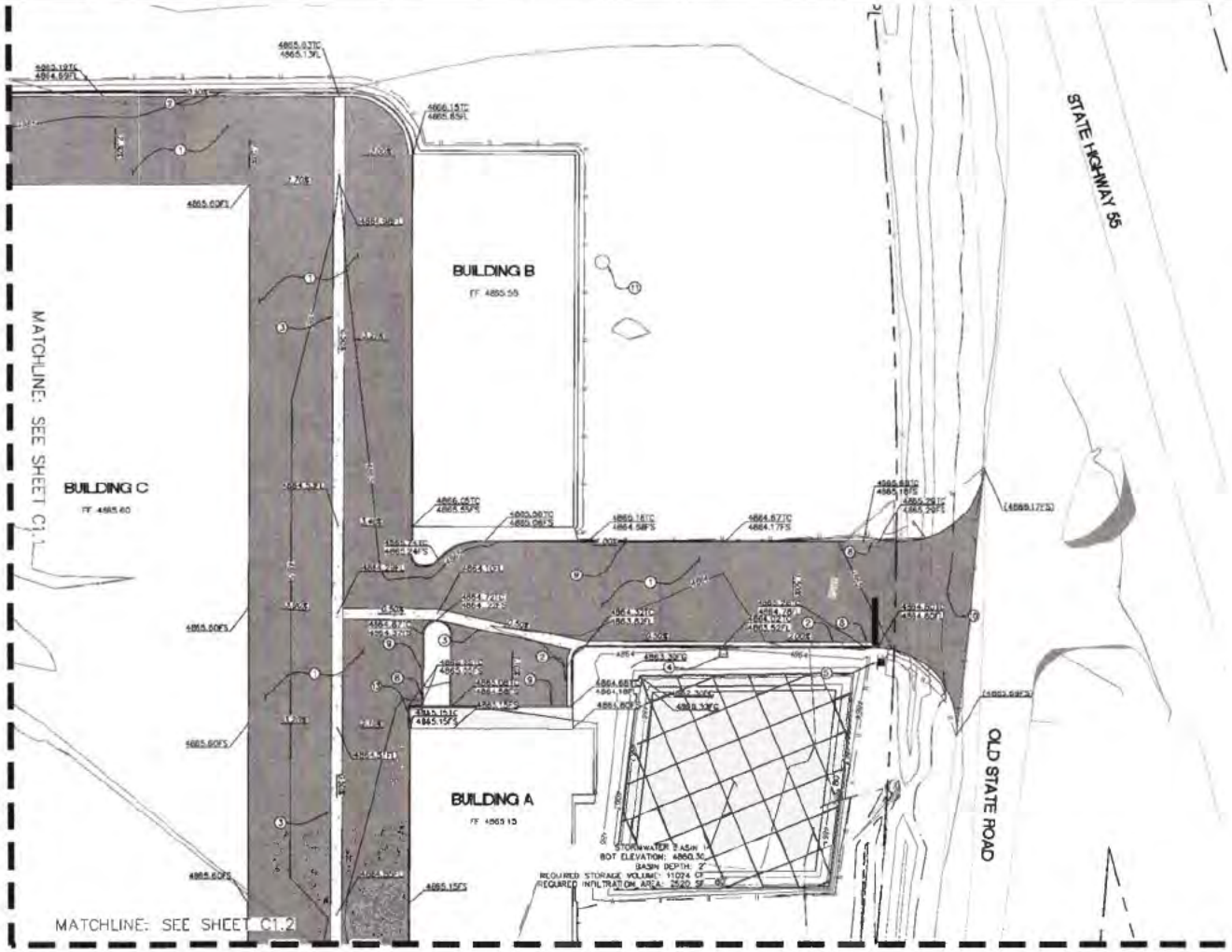
HATEN DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/10/2026
DRAWN BY: KS
CHECKED BY: MN
JOB NUMBER 322 - 101

NOTES AND DETAILS

C0.1



Nasland
Civil Engineering Consulting Land Planning

CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1.
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-601
3. INSTALL VALLEY GUTTER PER ISPWC SD-708
4. INSTALL CURB DRAIN PER ISPWC SD-715.
5. INSTALL STOP SIGN, STOP BAR AND PAVEMENT MARKINGS PER MUTCD STANDARDS.
6. INSTALL CURB TERMINUS PER ISPWC SD-707
9. INSTALL 6" CURB NO GUTTER PER ISPWC SD-701A
10. INSTALL RURAL DRIVEWAY APPROACH PER ISPWC SD-809
11. PROPOSED WELL. CONTRACTOR TO COORDINATE EXACT LOCATION AND INSTALLATION WITH WELL DRILLER. WATER SERVICES TO BUILDING TO BE COORDINATED WITH PLUMBING PLANS.
13. INSTALL 0" CURB NO GUTTER PER ISPWC SD-701.

20 0 20 40 60 80
SCALE 1" = 20'

SOURCE OF TOPOGRAPHY IS A SURVEY COMPLETED BY TERRAMARK LAND SURVEYING.

ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS RESOLUTION COMPUTED USING GEOID 18, AND ARE SHOWN IN THE NORTH AMERICAN VERTICAL DATUM OF 1988. NO SUITABLE PUBLISHED BENCHMARK WAS FOUND WITHIN A REASONABLE DISTANCE OF THE SUBJECT PROPERTY.

HATCH DESIGN
ARCHITECTURE
BOISE, IDAHO 83714
PHONE: (208) 475-3304
FAX: (208) 475-3305

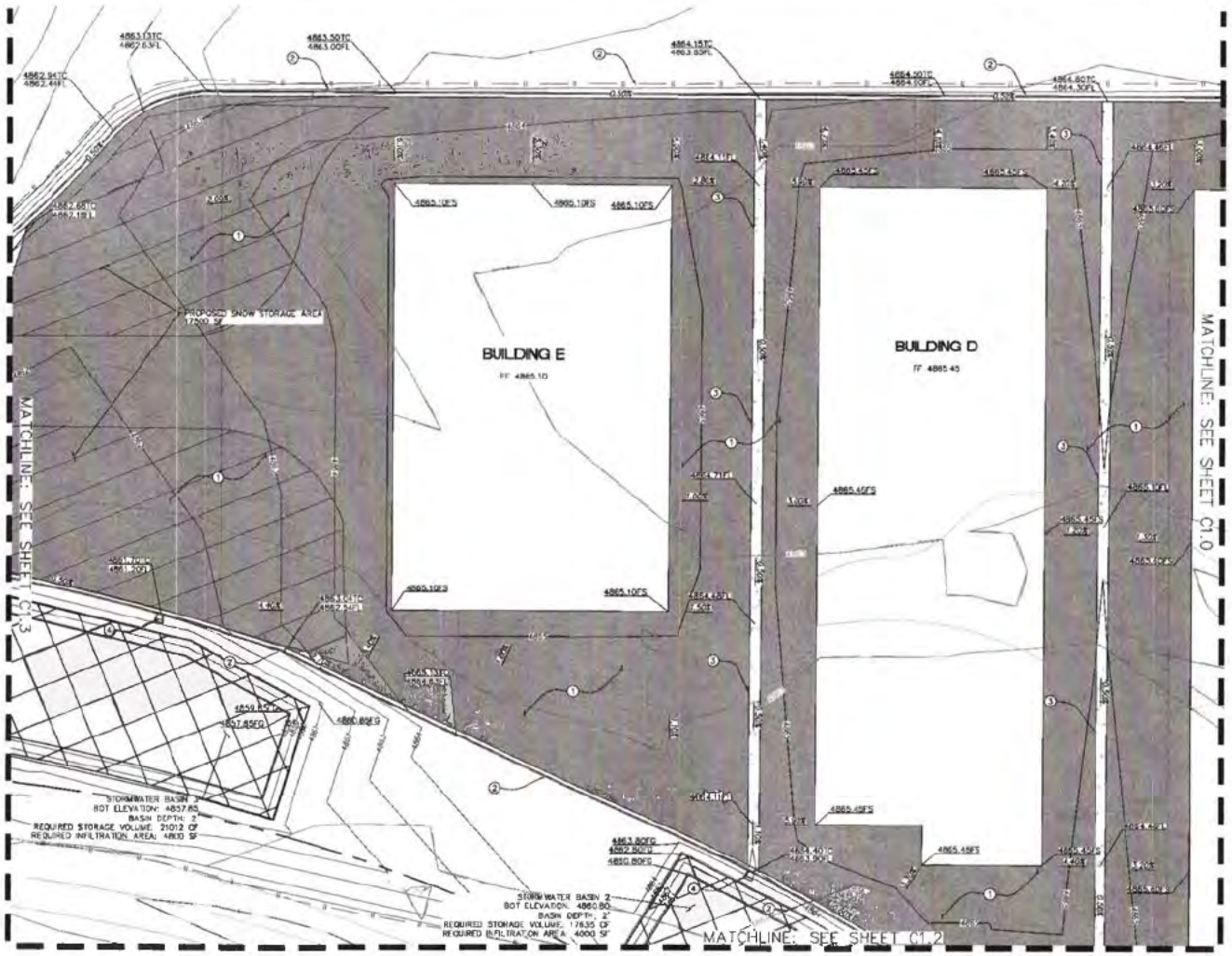
PROFESSIONAL ENGINEER
LICENSED
19776
IDAHO
BRENT NASLAND

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/16/2026
DRAWN BY: KS
CHECKED BY: MN
JOB NUMBER: 22-100

GRADING AND DRAINAGE PLAN

C1.0



SCALE 1" = 20'

CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-601
3. INSTALL VALLEY GUTTER PER ISPWC SD-708
4. INSTALL CURB DRAIN PER ISPWC SD-715

Nasland

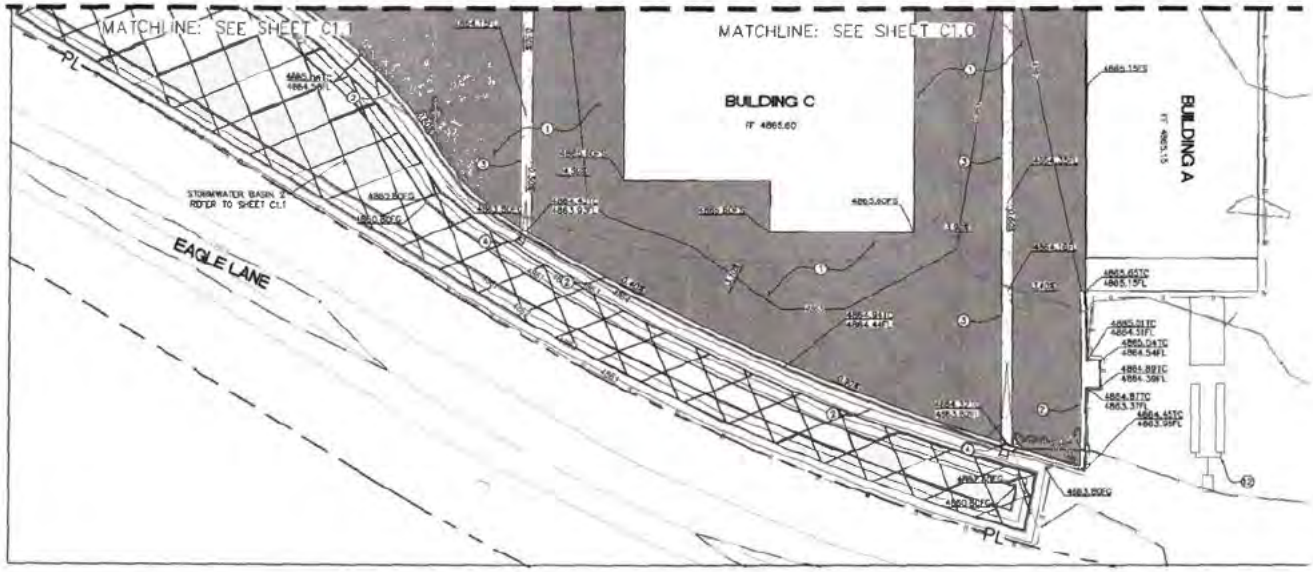
HATCH DESIGN ARCHITECTURE

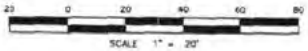
DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/18/2026
DRAWN BY: CS
CHECKED BY: MH
JOB No: 4865-322-1701

GRADING AND DRAINAGE PLAN

C1.1





CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1.
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-801.
3. INSTALL VALLEY GUTTER PER ISPWC SD-708.
4. INSTALL CURB DRAIN PER ISPWC SD-715.
11. PROPOSED SEPTIC SYSTEM. CONTRACTOR TO COORDINATE WITH GEOTECHNICAL ENGINEER AND LOCAL HEALTH DISTRICT FOR TESTING, PERMITTING AND INSTALLATION. SEWER SERVICES TO BUILDING TO BE COORDINATED WITH PLUMBING AND SEPTIC PLANS.

Nasland

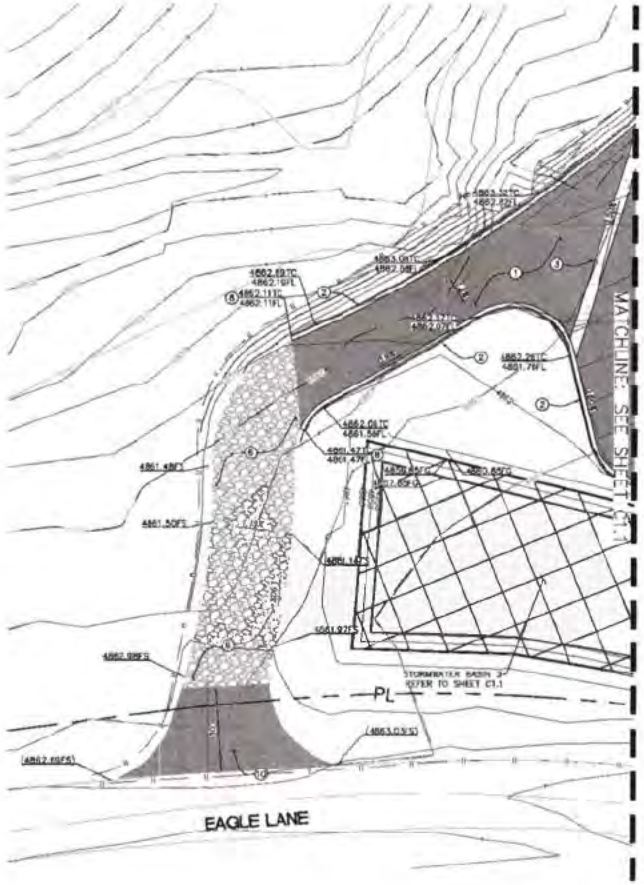
HATCH DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 1/16/2026
DRAWN BY: KS
CHECKED BY: MN
JOB NUMBER: 322 - 1191

GRADING AND DRAINAGE PLAN

C1.2



CONSTRUCTION NOTES

1. INSTALL PAVEMENT SECTION PER GEOTECHNICAL REPORT AND PAVEMENT SECTION ON SHEET C0.1
2. INSTALL 6" VERTICAL CURB AND GUTTER PER ISPWC SD-601
3. INSTALL VALLEY GUTTER PER ISPWC SD-708
5. INSTALL TEMPORARY GRAVEL ACCESS ROAD PER ISPWC SD-802
6. INSTALL CURB TERMINUS PER ISPWC SD-707
10. INSTALL RURAL DRIVEWAY APPROACH PER ISPWC SD-809

Nasland

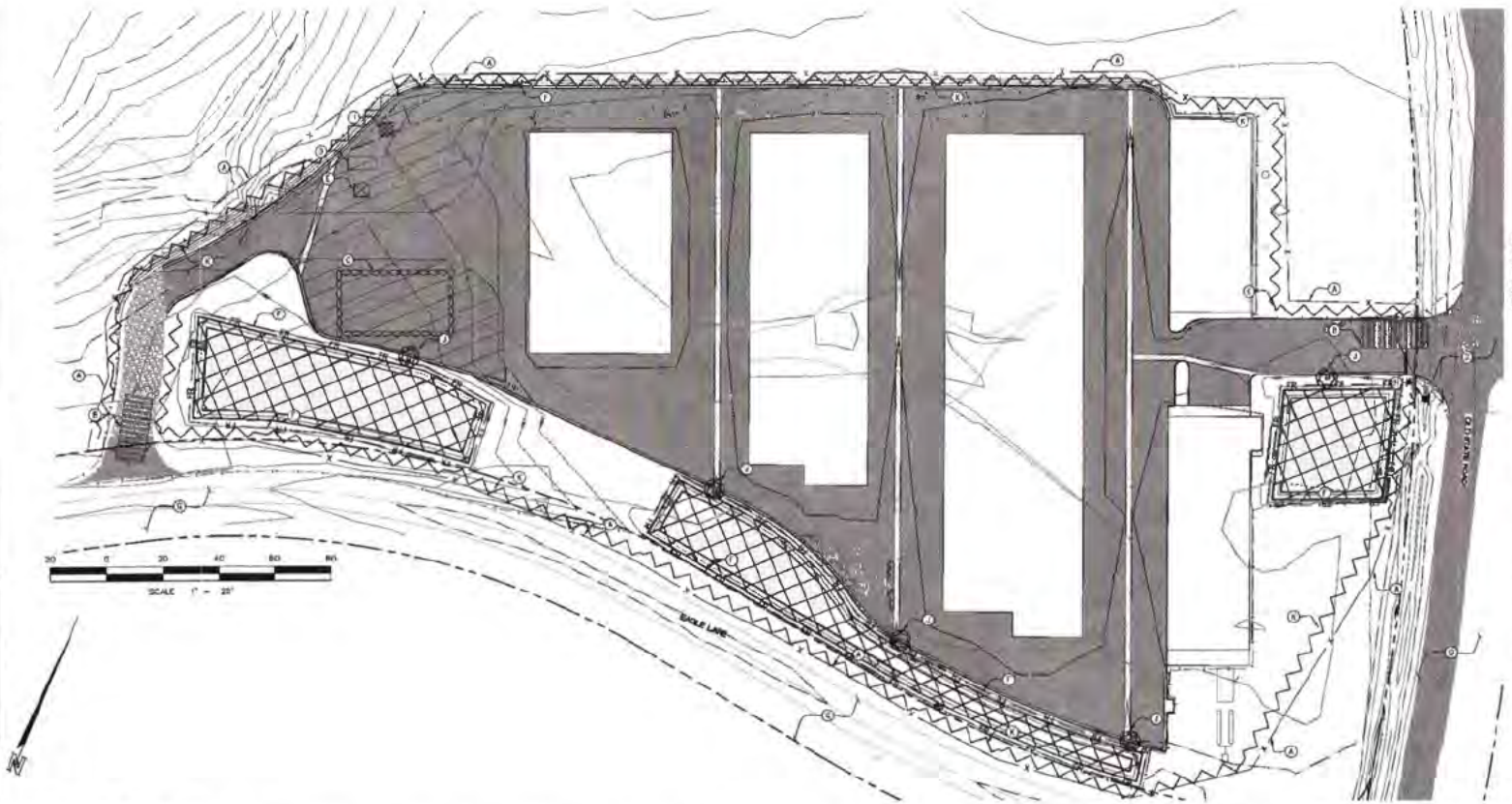
HATCH DESIGN ARCHITECTURE

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/15/2024
DESIGN BY: KS
CHECKED BY: MN
JOB NUMBER: 322-110.1

GRADING AND DRAINAGE PLAN

C1.3



IDAHO CATALOG OF STORM WATER BEST MANAGEMENT PRACTICES

THE FOLLOWING BEST MANAGEMENT PRACTICES (BMP) ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR AND/OR QUALIFIED PERSON BY THE ENGINEER OF WORK. REFER TO THE EROSION AND SEDIMENT CONTROL NARRATIVE AND BMP FACT SHEETS LISTED BELOW FOR ADDITIONAL INFORMATION.

- BMP 1: MINIMIZE LAND DISTURBANCE
- BMP 4: MANAGE IMPERVIOUS SURFACES – DISCONNECT AND REDUCE
- BMP 5: REDUCE ROADWAY AND SIDEWALK SURFACE AREAS
- BMP 31: TOPSOILING
- BMP 32: LANDSCAPING
- BMP 36: CONSTRUCTION FENCING
- BMP 37: STAGING AREAS
- BMP 38: PRESERVE TOPSOIL AND VEGETATION
- BMP 39: CLEARING LIMITS
- BMP 40: VEHICLE SEDIMENT CONTROL
- BMP 42: DUST CONTROL
- BMP 44: STOCKPILE MANAGEMENT
- BMP 45: MINIMIZE SOIL COMPACTION
- BMP 46: SPILL PREVENTION AND CONTROL
- BMP 48: HAZARDOUS MATERIALS MANAGEMENT
- BMP 49: CONCRETE WASTE MANAGEMENT
- BMP 50: SANITARY AND SEPTIC WASTE MANAGEMENT
- BMP 51: SOLID WASTE STORAGE AND DISPOSAL
- BMP 52: MULCHING
- BMP 64: FIBER ROLLS
- BMP 65: SILT FENCE
- BMP 73: DEWATERING
- BMP 74: INLET PROTECTION
- BMP 75: STREET SWEEPING
- BMP 76: STORM WATER SYSTEM CLEANING
- BMP 77: OUTDOOR STORAGE
- BMP 78: FERTILIZER MANAGEMENT
- BMP 79: PESTICIDE MANAGEMENT
- BMP 80: BUILDING AND GROUNDS MAINTENANCE
- BMP 68: NONSTORM WATER DISCHARGES TO DRAINS
- BMP 87: OUTDOOR LOADING AND UNLOADING OF MATERIALS
- BMP 89: CONTAMINATED SOIL MANAGEMENT
- BMP 90: BUILDING REPAIR, REMODELING, AND CONSTRUCTION
- BMP 91: EMPLOYEE TRAINING

EROSION AND SEDIMENT NOTES

TEMPORARY EROSION AND SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR AND/OR QUALIFIED PERSON AS INDICATED BELOW.

1. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS ON THIS PLAN IN ADDITION TO THE SWPPP. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
2. THIS EROSION CONTROL PLAN IS INTENDED TO GENERALLY REPRESENT THE EROSION CONTROL PRACTICES AND DEVICES REQUIRED TO PREVENT SEDIMENT FROM LEAVING THE SITE. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED BY THE EROSION AND SEDIMENT CONTROL PLAN AND SWPPP. ADDITIONAL BMP'S SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.
3. TEMPORARY EROSION CONTROL BMP'S SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE BOISE CITY EROSION CONTROL MANAGER A MINIMUM OF 48-HOURS PRIOR TO COMMENCEMENT OF INSTALLATION OF EROSION CONTROL DEVICES.
4. THE BMP'S SHALL MEET THE CRITERIA AND SPECIFICATIONS OF THE STATE OF IDAHO CATALOG OF STORM WATER BMP'S FOR IDAHO CITIES AND COUNTIES PREPARED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY, AS APPLICABLE. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL IMPLEMENT ADDITIONAL DEVICES AND CONTROLS AS DIRECTED BY THE PERMITTING AGENCY, RESIDENT ENGINEER AND/OR OWNER.
5. THE CONTRACTOR SHALL LIMIT SITE DISTURBANCE IN STRICT ACCORDANCE WITH THIS EROSION AND SEDIMENT CONTROL PLAN. NO UNNECESSARY OR IMPROPER CLEARING AND/OR GRADING SHALL BE PERMITTED.
6. THE CONTRACTOR AND/OR QUALIFIED PERSON SHALL INSPECT THE SITE PERIODICALLY, ESPECIALLY AFTER RAIN EVENTS, TO VERIFY THAT NO SEDIMENT LEAVES THE SITE. ALL RUNOFF FROM CONSTRUCTION ACTIVITIES AND FROM RAINFALL SHALL BE RETAINED ON SITE.
7. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL EVENT. THEY SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEMS OR REIMBURSE THE CITY FOR ANY EXPENSES INCURRED BY THE CITY DUE TO CLEANUP ACTIVITIES.
8. THE CONTRACTOR SHALL RESTORE ALL BMP'S TO WORKING ORDER TO THE SATISFACTION OF THE PERMITTING AGENCY, RESIDENT ENGINEER AND/OR OWNER AFTER EACH RAINFALL EVENT.
9. NO DEBRIS, DIRT, AGGREGATE OR EXCAVATION MATERIALS, OR CONSTRUCTION SUPPLIES SHALL BE PLACED WITHIN THE PUBLIC RIGHT-OF-WAY UNLESS PERMITTED BY THE PERMITTING AGENCY. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT. IN ADDITION, PUBLIC SIDEWALKS SHALL NOT BE REMOVED, BLOCKED, OR OTHERWISE RENDERED UNUSABLE BY CONSTRUCTION ACTIVITY, EQUIPMENT OR MATERIALS, OR PORTABLE TOILETS UNLESS A SAFE, USABLE ALTERNATE WALKWAY, WHICH MEETS THE DESIGN STANDARDS OF THE PERMITTING AGENCY, IS PLACED ON THE SAME SIDE OF THE RIGHT-OF-WAY BY THE CONTRACTOR.
10. STOCKPILE EXCAVATION MATERIALS SHALL BE PROTECTED FROM WATER AND WIND EROSION BY COVERING AS APPROPRIATE.
11. CLEANING WASTE DISPOSAL PIT SHALL BE USED TO DISPOSE OF ALL SAFE CLEANING WASTES. SOLID WASTE OR HAZARDOUS MATERIALS SHALL NOT BE ALLOWED IN THE CLEANING WASTE DISPOSAL PIT. THE PIT SHALL BE INSPECTED REGULARLY AND ANY HARDENED CONCRETE OR PAINT MATERIALS SHALL BE DISPOSED OF ON A REGULAR BASIS.
12. EXISTING STORM DRAIN CATCH BASINS WITHIN THE VICINITY OF THE PROJECT SITE SHALL BE PROTECTED PRIOR TO THE START OF CONSTRUCTION AND SHALL BE MAINTAINED UNTIL THE SITE HAS BEEN PAVED AND LANDSCAPING HAS BEEN ESTABLISHED. CONTRACTOR SHALL INSTALL "ULTRA DRAINGUARD" CATCH BASIN INSERT OR APPROVED EQUAL.
13. CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTORS SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER, ENGINEER AND GEOTECHNICAL ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN THE CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROPERTY, EXCEPTING FOR LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND TRAFFIC CONTROL WITHIN AND AROUND THE PROJECT SITE. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT:
    - 14.1 TRACKING OF MUD AND DIRT ONTO THE ADJACENT ROADWAYS; STREET SWEEPING IS REQUIRED IF TRACKING OCCURS.
    - 14.2 DISPOSAL OF ACCUMULATED SITE CONSTRUCTION WASTE AND LITTER ON SITE.
    - 14.3 DISPOSAL OF CONSTRUCTION WASTE WITHIN THE STORM DRAIN SYSTEM.
15. ADJACENT DRIVEWAYS AND STREETS SHALL CONTINUOUSLY REMAIN UNOBSTRUCTED DURING CONSTRUCTION.
16. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN AND WITHIN THE SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED OR FINAL STABILIZATION OF THE SITE IS ACHIEVED. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AND REPAIRED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

EROSION CONTROL LEGEND

CONSTRUCTION FENCING	A	—— A ——
STABILIZED CONSTRUCTION ENTRANCE/EXIT PER FACT SHEET BMP 40	B	
STAGING AREA AND STOCKPILE MANAGEMENT PER FACT SHEETS BMP 37 & 44	C	
CLEANING WASTE DISPOSAL PIT PER FACT SHEET BMP 46	D	
SANITARY FACILITY PER FACT SHEET BMP 50	E	
FIBER ROLL PER FACT SHEET BMP 64	F	—— FR —— FR —— FR ——
STREET SWEEPING PER FACT SHEET BMP 75	G	
ESC SIGN POSTING LOCATION	H	
CONCRETE WASHOUT PER FACT SHEET BMP 49	I	
STORM DRAIN INLET PROTECTION PER FACT SHEET BMP 74	J	
SILT FENCE PER FACT SHEET BMP 65	K	

NASLAND ENGINEERING

DONNELLY STORAGE FACILITY
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE: 3/14/2022
DRAWN BY: KB
CHECKED BY: MN
JOB NUMBER: 2021-1104

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO.
ESCP

APPENDIX C – STORM DRAINAGE CALCULATIONS & RESOURCES

Basin 1

	A	C	I
	50788		
	1.165932048	0.9	

tc	10 mins	area	rainfall coefficient	Flow	storage
2 year	0.87	1.165932048	0.9	0.912925	3286.52926
5 year	1.38	1.165932048	0.9	1.448088	5213.11537
25 year	2.11	1.165932048	0.9	2.214105	7970.77785
50 year	2.51	1.165932048	0.9	2.63384	9481.82579
100 year	2.87	1.165932048	0.9	3.011602	10841.7689

	top	bottom
L	80	68
W	80	68
D	2	
area	6400	
volume (CF)	11024	

drawdown time (hr) 26.05192456

Basin 2

	A	C	I
	79145		
	1.816919192	0.9	

tc	10 mins	area	rainfall coefficient	Flow	storage
2 year	0.87	1.816919192	0.9	1.422648	5121.53182
5 year	1.38	1.816919192	0.9	2.256614	8123.80909
25 year	2.11	1.816919192	0.9	3.45033	12421.1864
50 year	2.51	1.816919192	0.9	4.10442	14775.9136
100 year	2.87	1.816919192	0.9	4.693102	16895.1682

	top	bottom
L	1	1
W	11302	6333
D	2	
area	11302	
volume (CF)	17635	

drawdown time (hr) 29.64220605

Basin 3

	A	C	I
	96002		
	2.203902663	0.9	

tc	10 mins	area	rainfall coefficient	Flow	storage
2 year	0.87	2.203902663	0.9	1.725656	6212.36083
5 year	1.38	2.203902663	0.9	2.737247	9854.08959
25 year	2.11	2.203902663	0.9	4.185211	15066.7602
50 year	2.51	2.203902663	0.9	4.978616	17923.018
100 year	2.87	2.203902663	0.9	5.692681	20493.6501

	top	bottom
L	1	1
W	12030	8982
D	2	
area	12030	
volume (CF)	21012	

drawdown time (hr) 25.35150558

Pre-Development Rational Method

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Storage Volume (cf)
2	5.18	0.20	10	0.87	0.90	3244.8
5	5.18	0.20	10	1.38	1.43	5146.8
10	5.18	0.20	10	2.11	2.19	7869.5
50	5.18	0.20	10	2.51	2.60	9361.3
50	5.18	0.20	10	2.87	2.97	10704.0

Post-Development Rational Method - Basin 1

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	1.17	0.90	10	0.87	0.91	1	3287
5	1.17	0.90	10	1.38	1.45	1	5213
10	1.17	0.90	10	2.11	2.21	1	7971
50	1.17	0.90	10	2.51	2.63	1	9482
100	1.17	0.90	10	2.87	3.01	1	10842

Post-Development Rational Method - Basin 2

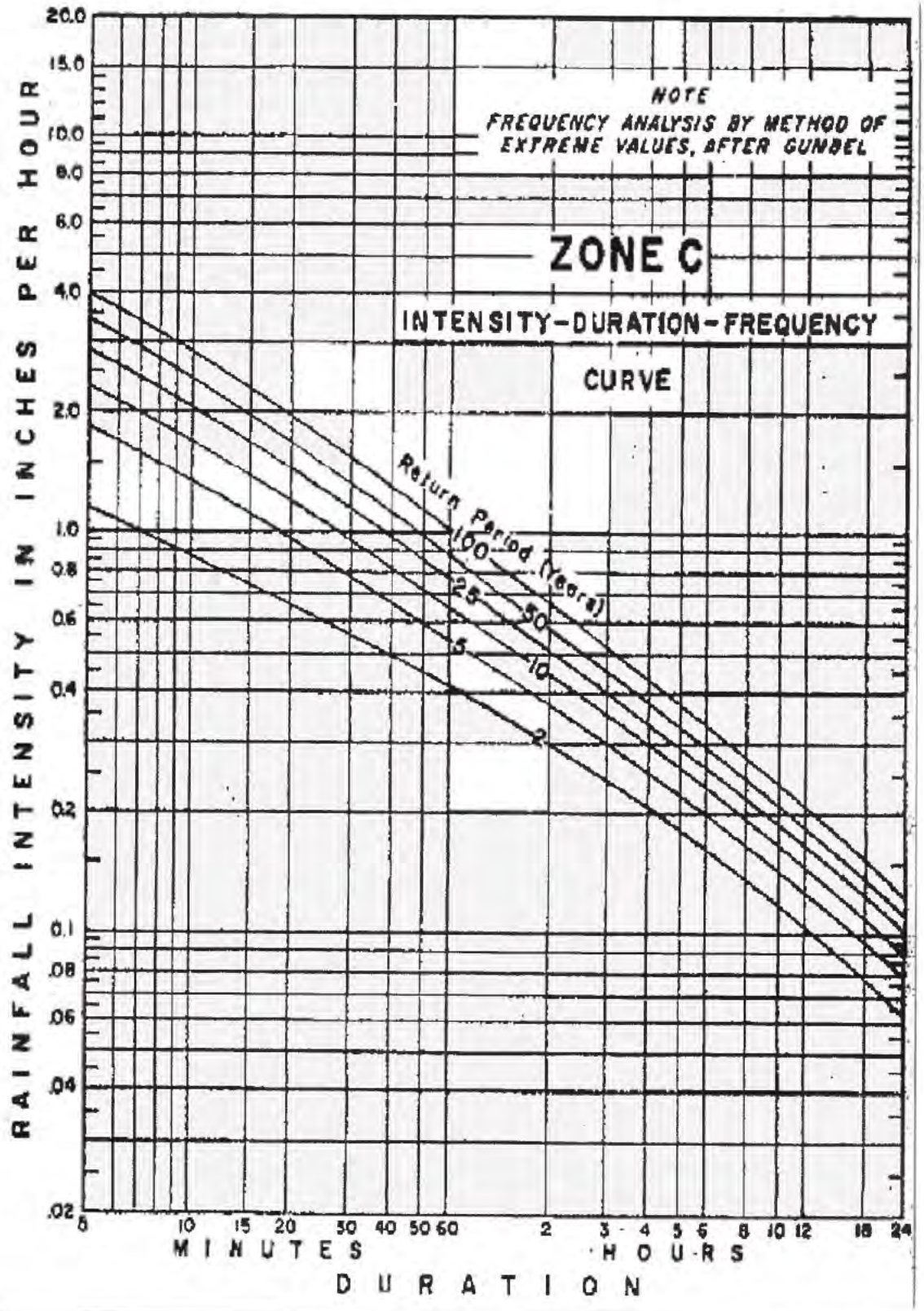
Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	1.82	0.90	10	0.87	1.42	1	5122
5	1.82	0.90	10	1.38	2.26	1	8124
10	1.82	0.90	10	2.11	3.45	1	12421
50	1.82	0.90	10	2.51	4.10	1	14776
100	1.82	0.90	10	2.87	4.69	1	16895

Post-Development Rational Method - Basin 3

Storm Event (yrs)	Area (ac)	Runoff Coefficient	Time of Concentration (min)	Average Rainfall Intensity (in/hr)	Peak Discharge (cfs)	Design Storm Duration (hr)	Storage Volume (cf)
2	2.20	0.90	10	0.87	1.73	1	6212
5	2.20	0.90	10	1.38	2.74	1	9854
10	2.20	0.90	10	2.11	4.19	1	15067
50	2.20	0.90	10	2.51	4.98	1	17923
100	2.20	0.90	10	2.87	5.69	1	20494

APPENDIX D – REFERENCES

Figure B-8
Sheet 3 of 9



3.6 Perform Engineering Calculations and Design for Storm Water Management

After the conceptual site design and BMP selection is completed, perform hydrologic calculations for both the predevelopment and postdevelopment conditions, with upstream and downstream conditions in mind. Use local design standards for flood control and water quality control. If local design standards are not available, Table 5 provides a summary of design storm frequencies and their corresponding benefits. Calculate the required volume and peak flow of the discharge and determine the amount of runoff to be detained and/or treated on site. Check with the performance goals and adjust the site design and BMP selection and design as necessary until performance goals are met.

Table 5. Design storm frequencies and assumed benefits (EPA 2005).

Design Storm	Assumed Benefits	Comments
1/2 to <1-inch rainfall	Intended to capture 70%–80% of annual runoff volume in an attempt to improve water quality.	Used by many municipalities. Some studies have shown that capturing the first 1/2 inch of runoff will control 70% of the annual runoff.
1-inch rainfall	Intended to capture 90% of annual runoff volume in an attempt to improve water quality.	Replacing 1/2 inch as basis for water quality control. Some studies have shown that capturing the first 1 inch of runoff will control 90% of the annual runoff.
1 year	Intended to capture sufficient runoff volume to improve water quality and provide downstream channel protection.	Used by some municipalities for water quality management and is based on the supposition that the channel-forming event is the annual storm.
2 year	Intended to provide protection from accelerated channel erosion and for habitat protection.	Used by many municipalities. Limited field monitoring indicates that the strategy is flawed, as increased volume in postdevelopment runoff results in pond discharges at flow rates near the peak discharge for much longer times than in the predevelopment state. This results in more erosion over the storm duration, which subsequently results in wider and deeper channels than in the predevelopment state although the peak flow rates for pre- and postdevelopment are equal.
10 year	Intended to provide flood protection from intermediate-sized storm events by matching postdisturbed peaks to predisturbed peaks.	When used for on-site detention, flood control benefits are provided primarily to local areas with limited protection of larger downstream channels. In some cases, potential for downstream flooding is increased due to timing of runoff events.
100 year	Used for flood control protection from major storms; also used to maintain 100-year floodplain limits.	When used for on-site detention, flood control benefits are provided primarily to local areas with limited protection of larger downstream channels. In some cases, potential for downstream flooding is increased due to timing of runoff events.

3.6.1 Design for Flood Control Facilities

While the most frequently used design for flood control and channel protection are the 2-, 10-, and 100-year storms, local design standards for sizing storm water facilities for flood control may vary. New development and redevelopment projects are typically required to produce peak discharges less than or equal to predevelopment levels.

Although peak discharge control is a widely used method for mitigating the impacts of land development on storm water runoff, it does have limitations and drawbacks when it is the only approach used. Depending on the location and hydrologic timing of a project site, on-site detention could increase the peak flow in the receiving water when it is combined with other tributaries depending on timing. Peak discharge control also does not address issues associated with increased frequency, duration, and volume of storm water discharges, which can cause increased erosion and bank instability in the receiving channels. Water quality degradation, insufficient low flows, and reduction in ground water recharge due to development are also not addressed by detention alone. Evaluate the impact on the watershed as a whole, and combine peak discharge control BMPs with BMPs that can mitigate for water quality and attempt to replicate the natural hydrologic systems before development.

3.6.2 Design for Water Quality Facilities

Design for water quality control is focused on smaller, more frequent storms, and criteria are typically expressed as either treatment of a specified rainfall depth or removal of a specified percentage of a pollutant.

Treatment of a specified rainfall depth is intended to capture the *first flush* of runoff from the initial portion of the storm event. As pollutants accumulate between events, the first flush of runoff has the tendency to carry a high concentration of pollutants, such as sediment, litter, and automotive discharges, from the surface of paved areas. The potential for pollution from the first flush is determined by such storm characteristics as the duration between events, size of the subwatershed, and partitioning characteristics of the pollutants of concern. Nationally, many jurisdictions specify a treatment volume, referred to as the water quality volume, designed to capture the first flush component of the storm water runoff. This is achieved by specifying a rainfall amount (e.g., first 1/2-inch, 1-inch, or other rainfall depth over impervious areas) or by specifying the capture of a storm water runoff volume that correlates to a design storm (such as the 6-month, 1-year, or 2-year frequency storm). Ideally, several decades of storm volume and intensity information for a given county would be analyzed to determine rainfall volumes for the various design storms. ITD has completed the analysis but only for 2-year storms and larger.

Another water quality control approach is to require that a specified amount of the pollutant of concern be removed from the storm water runoff before it is discharged from the site. This reduction is commonly specified as a percentage reduction of the pollutant of concern, and the compliance point may be determined by the MS4 requirements, TMDL of a specific receiving water body, or final storm water discharge location in the watershed. For example, the federal coastal zone guidance specifies that urban runoff from new and stabilized development sites must have 80% of suspended solids removed before it is discharged from the site. Implementing pollution reduction strategies requires knowledge of the preconstruction and postdevelopment average mass of pollutants. This strategy is effective if the regulating municipality selects an achievable pollutant reduction amount and ensures that the storm water controls are properly selected, designed, constructed, operated, and maintained.

3.6.3 Calculate Peak Discharge Rates and Volumes

Hydrologic models are either single event models or continuous simulation models. Single event models estimate peak discharges and volumes for a single rainfall event, referred to as the design

storm. These models assume the watershed characteristics remain constant during a rainfall event and the return period of the peak discharge is the same as the return period of the design rainfall event. Continuous simulation models analyze rainfall and predict the resulting runoff and loading on a daily basis. Typically, 25 to 100 years of simulation is conducted, and the return period analysis is completed using the predicted values.

Benefits and drawbacks exist for each modeling method. In general, continuous simulation is best for water quality analysis, and a single event design storm is best for flood analysis. Several computer models are available for performing continuous simulation analysis, including the Hydrological Simulation Program—Fortran (*HSPF*), Hydrologic Engineering Center Hydrologic Modeling System (*HEC-HMS*), and Storm Water Management Model (SWMM). EPA's *National Stormwater Calculator*, released in 2012, uses the SWMM modeling engine combined with an interactive map that seamlessly integrates with soil and meteorological databases to estimate runoff and evaluate the effectiveness of different BMP types. HEC-HMS and SWMM computer models can perform single event simulations in addition to continuous simulations. The rational method and *NRCS Technical Release-55* (TR-55) method are simple and widely used for performing single event design storm analysis.

3.6.3.1 Rational Method

The rational method is simplified for estimating the peak rate and total volume of runoff for a single drainage basin during a single storm event. This method is commonly used to compute peak runoff rates for flow-based runoff treatment BMPs such as biofiltration swales and oil/water separators. It is also commonly applied to infiltration trench and conveyance system design.

The rational method assumes that rainfall is distributed uniformly over the entire basin area and the rainfall intensity is constant during the storm. The standard rational method only produces one point on the runoff hydrograph. Due to the assumptions and limitations of the rational method, it is recommended for developed areas smaller than 100 acres with large areas of impervious surface (e.g., pavement and roof tops).

Peak runoff rates may be estimated by the rational formula (Equation 1):

$$Q_P = CIA$$ **Equation 1. Rational formula for peak discharge.**

Where

Q_p = peak discharge (cubic feet per second)

C = dimensionless runoff coefficient

I = average rainfall intensity (inches per hour) for a duration equal to the time of concentration and for the recurrence interval chosen for design

A = drainage area (acres)

The total volume of runoff may be estimated by the rational formula for volume (Equation 2):

$$V_r = CIAT$$ **Equation 2. Rational formula for total runoff volume.**

Where

V_r = volume of runoff (cubic feet)

C = dimensionless runoff coefficient

I = average rainfall intensity for a duration equal to the time of concentration and for the recurrence interval chosen for design (inches per hour)

A = drainage area (acres)

T = storm duration (seconds)

The runoff coefficient, C, represents the ratio of rainfall to runoff and reflects the cumulative effect of infiltration, evaporation, retention, and interception, which depends on the imperviousness, slope, and ponding characteristics of the surface. Soil factors including antecedent moisture content, degree of compaction, porosity of the subsoil, and proximity of the water table also affect runoff volumes. Suggested C values can be obtained from Table 6 and Table 7. For mixed surfaces within a basin, an area-weighted composite runoff coefficient can be calculated using the following formula (Equation 3):

$$C = \frac{\sum_{j=1}^{n} C_j A_j}{A}$$ **Equation 3. Composite runoff coefficient.**

Where

C = composite runoff coefficient

n = total number of subbasins

C_j = estimated runoff coefficient for a given subbasin

A_j = drainage area for a given subbasin

Table 6. Recommended C coefficients (modified from Lindeburg 2009).

Description of Runoff Area	Runoff Coefficients
Business	
Central business areas	0.70–0.95
District and local areas	0.50–0.70
Residential	
Single family	0.35–0.45
Multifamily, detached	0.40–0.60
Multifamily, attached	0.60–0.75
Residential 0.5 acre lots or larger	0.25–0.40
Industrial and commercial	
Light areas	0.50–0.80
Heavy areas	0.60–0.90
Parks, cemeteries	0.10–0.25
Playgrounds	0.20–0.35
Unimproved areas	0.10–0.30
Landscaped areas	0.20
Streets (asphalt, concrete), drives and walks, roofs	0.90–0.95

Table 7. Recommended C coefficients for pervious surfaces.

Slope	Runoff Coefficient			
	A soils	B soils	C soils	D soil
Flat 0%–2%	0.04	0.07	0.11	0.15
Average 2%–6%	0.09	0.12	0.15	0.20
Steep >6%	0.13	0.18	0.23	0.28

The time of concentration is the time it takes a drop of water to travel from the most hydraulically remote point in the basin to the basin outlet. Time of concentration is often calculated by adding the estimated travel times for each segment along the flow path including sheet flow, shallow concentrated flow, and open channel flow. Details are found in the NRCS *National Engineering Handbook*, Chapter 15 "Time of Concentration" (NRCS 2010).

Rainfall intensity-duration frequency (IDF) curves can be used to acquire storm duration and intensity for use in the rational method. IDF curves for Idaho have been developed by ITD and are found in the *Roadway Design Manual, Appendix B*.

NRCS TR-55 presents a single event hydrograph method that uses a dimensionless unit hydrograph with drainage area characteristics to determine flow volume and peak discharge. Runoff flows and volumes are estimated using an empirically derived *runoff curve number* (CN). The CN is similar to the "C" value used in the rational method. The CN depends on hydrolic soil group, vegetation, imperviousness, interception, and surface storage. CNs range from 30 to 100. Lower numbers indicate low runoff potential while larger numbers indicate high runoff potential.

CN values were developed from 20 years of studies of the rainfall-runoff relationship for small, rural, agricultural-based watersheds. The TR-55 method assumes that rainfall is uniformly distributed over a watershed over a specified time distribution. The method is limited to NRCS type distributions, 24-hour duration rainfall, and concentration times between 0.1 hour and 10-hours. Additionally, since CNs were originally developed from annual flood flows from experimental watersheds, their application to low flows or small flood peak flows is not recommended. For example, the minimum 24-hour design rainfall depth for a CN of 65 ranges between 2.47 and 2.99 inches, depending on the reference source (NRCS 1986; Hawkins et al. 1985). Thus, the applicability of the curve number approach is limited to flood events most likely larger than the water quality design storm.

CN runoff is shown in (Equation 4):

$$Q = \frac{(P - I_a)^2}{(P - I_a) + S}$$ **Equation 4. CN runoff.**

Where

Q = runoff (inches)

P = rainfall depth (inches)

S = potential maximum retention after runoff begins (inches)

I_a = initial abstraction (inches)

The initial abstraction can be approximated by the following empirical Equation 5:

$$I_a = 0.2S$$ **Equation 5. Initial abstraction.**

The potential maximum retention after runoff begins, S, is related to the soil and cover conditions with the CN (Equation 6):

$$S = \frac{1000}{CN} - 10$$ **Equation 6. Potential maximum retention.**

Runoff CNs for urban areas based on hydrologic soil group and an average runoff condition are shown in Table 8. These values assume that pervious urban areas are equivalent to pasture in good hydrologic condition, impervious areas have a CN of 98 and are directly connected to the drainage system, and the cover types listed have assumed percentages of impervious area as shown in Table 8. Additional information on calculating composite CNs and CNs for agricultural and forest lands is included in the NRCS National Engineering Handbook, Chapter 10 "Estimation of Direct Runoff from Storm Rainfall" (NRCS 2004).

Table 8. Runoff curve numbers for urban areas (NRCS 2004).

Cover description cover type and hydrologic condition	Average percent impervious area 2/	CN for hydrologic soil group			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) 3/					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) 4/		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)		77	86	91	94

1/ Average runoff condition, and $I_a = 0.2S$.

2/ The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition.

3/ CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space type.

4/ Composite CNs for natural desert landscaping should be computed using figures 9-3 or 9-4 based on the impervious area percentage (CN=98) and the pervious area CN. The pervious area CNs are assumed equivalent to desert shrub in poor hydrologic condition.

Runoff rates can be calculated using either the graphical peak discharge method to determine peak discharge or the tabular hydrograph method to determine a partial composite flood hydrograph. Input data required include 24-hour rainfall depth (inches), appropriate rainfall distribution (Type I, IA, II, or III), CN, T_c (hours), and drainage area (mi^2). Information on rainfall distributions and rainfall depth for specific storm frequencies are available from the National Oceanic and Atmospheric Administration's *National Weather Service*.

Other computer programs that use TR-55 features include *WinTR-55* and *HydroCAD*.

3.6.3.2 Estimating Runoff During Snowmelt

Most storm water facilities are designed for events assumed to consist of precipitation entirely in the form of rain. In most parts of the country, the largest storms are intense summer thunderstorms. In the Pacific Northwest, the largest rainfall volumes occur in less intense but prolonged winter storms. A different type of event that often contributes to flooding is snowmelt, especially during a rainstorm. One characteristic that makes snowmelt so damaging is that due to the saturated and frozen ground, the heavy flows are reduced by infiltration. Because of the large amount of water contained in snowpack, snowmelt can cause significant capacity and erosion problems. The problem worsens if a significant rain event occurs during snowmelt, and the ground is still frozen.

Three factors must be considered to estimate flows during snowmelt. First, the storm parameters should be derived from IDF curves in the same manner as the regular design storm. IDF curves represent the greatest intensity expected during a given time period, which usually occurs during summer thunderstorms. The assumption that this storm intensity occurs during a time of snowmelt is conservative.

Second, the CN number should be adjusted. The CN numbers given for the various land uses in the TR-55 documentation are for an antecedent moisture condition (AMC) of II, which is defined as average conditions. Using Table 9, AMC II numbers are converted to AMC III, which is defined as heavy rainfall, or light rainfall and low temperatures occurring within the last 5 days, leading to saturated soils.

Third, the water contributed from the snowmelt itself needs to be computed. The degree-day method outlined in the *National Engineering Handbook* (NRCS 2004) can be used for clear weather melt in forested watersheds. For rain-on-snow events, an energy balance approach using a computer model such as HEC-HMS is recommended.

The degree-day method is based on Equation 7:

$$M = C_M(T_a - T_b)$$

Equation 7. Snowmelt using degree-day method.

Where:

M = snowmelt (inches/day)

T_a = mean daily air temperature (°F)

T_b = base temperature or temperature at which snow melts (°F)

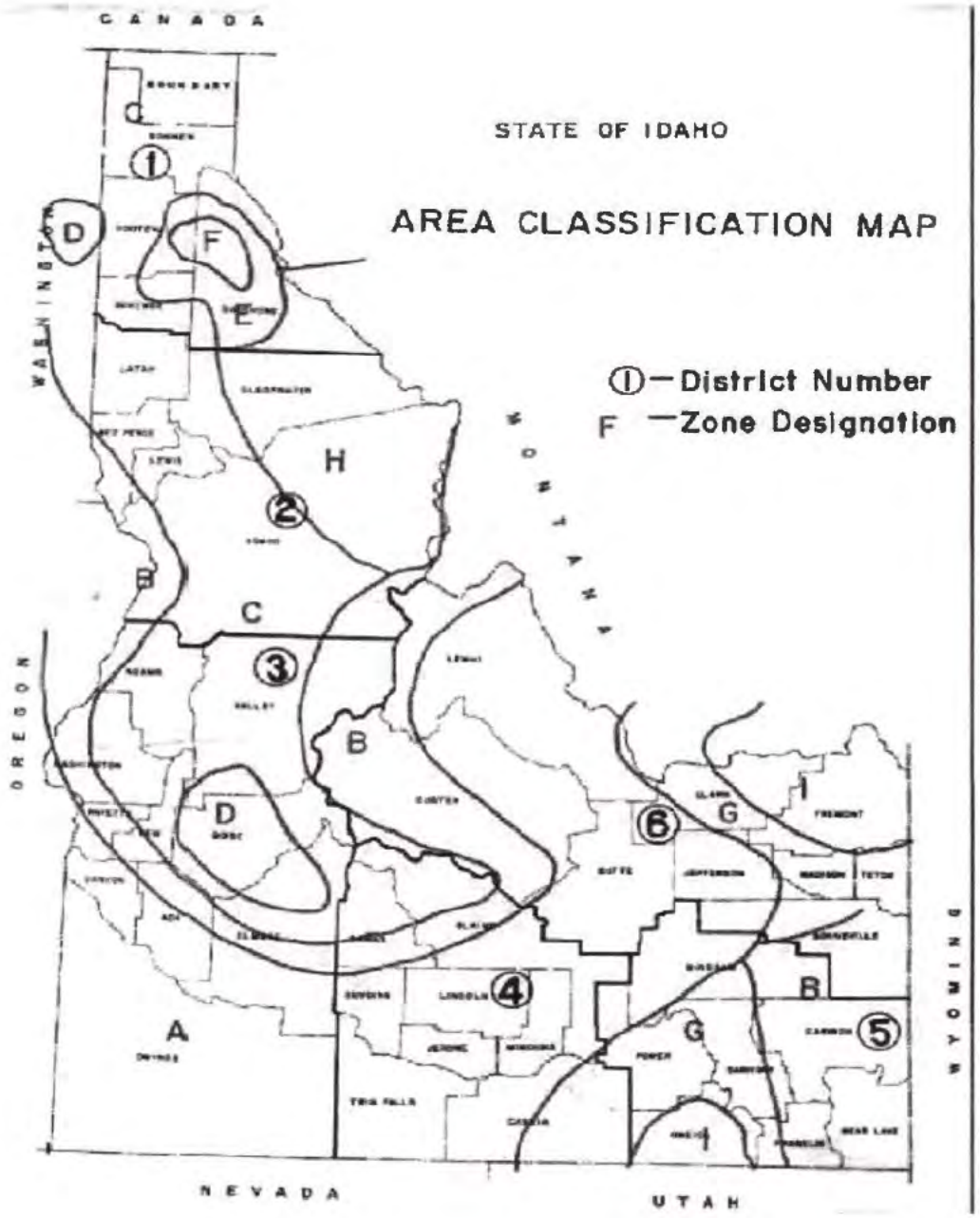
C_M = degree day coefficient (inches/degree-day F)

The coefficient, C_M, varies with location and seasons, and typical values range from 0.035 to 0.13 inches per degree-day Fahrenheit. Often a value of 0.06 is used when information is not available for the site. For example, a sudden thaw of 40 degrees occurs, and the snowmelt equals 0.06 (40–32) or 0.48 inches per day. This occurrence should be added to the rainfall from the storm and used with the adjusted CN from Table 9.

Table 9. Converting AMC II to AMC III.

CN for AMC Condition II	CN for AMC Condition III	CN for AMC Condition II	CN for AMC Condition III
100	100	62	79
99	100	61	78
98	99	60	78
97	99	59	77
96	99	58	76
95	98	57	75
94	98	56	75
93	98	55	74
92	97	54	73
91	97	53	72
90	96	52	71
89	96	51	70
88	95	50	70
87	95	49	69
86	94	48	68
85	94	47	67
84	93	46	66
83	93	45	65
82	92	44	64
81	92	43	63
80	91	42	62
79	91	41	61
78	90	40	60
77	89	39	59
76	89	38	58
75	88	37	57
74	88	36	56
73	87	35	55
72	86	34	54
71	86	33	53
70	85	32	52
69	84	31	51
68	84	30	50
67	83	25	43
66	82	20	37
65	82	15	30
64	81	10	22
63	80	5	13

Figure B-7


CANADA
STATE OF IDAHO
AREA CLASSIFICATION MAP
①—District Number
F —Zone Designation
WASHINGTON
OREGON
NEVADA
UTAH
WYOMING

APPENDIX E – GEOTECHNICAL REPORT

GEOTECHNICAL INVESTIGATION

SHOEMAKER DONNELLY

NWC Old State Road and Eagle Lane
Donnelly, ID

PREPARED FOR:

Mr. Jeff Hatch
Hatch Design Architecture
200 West 36th Street
Boise, ID 83714

PREPARED BY:

Atlas Technical Consultants, LLC
2791 South Victory View Way
Boise, ID 83709

October 11, 2022
B222055g

2791 South Victory View Way
Boise, ID 83709
(208) 376-4748 | oneatlas.com

October 11, 2022

Atlas No. B222055g

Mr. Jeff Hatch
Hatch Design Architecture
200 West 36th Street
Boise, ID 83714

Subject: **Geotechnical Investigation**
Shoemaker Donnelly
NWC Old State Road and Eagle Lane
Donnelly, ID

Dear Mr. Hatch:

In compliance with your instructions, Atlas has conducted a soils exploration and foundation evaluation for the above referenced development. Fieldwork for this investigation was conducted on September 15 and 16, 2022. Data have been analyzed to evaluate pertinent geotechnical conditions. Results of this investigation, together with our recommendations, are to be found in the following report. We have provided a PDF copy for your review and distribution.

Often, questions arise concerning soil conditions because of design and construction details that occur on a project. Atlas would be pleased to continue our role as geotechnical engineers during project implementation.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

Clinton Wyllie, PG
Staff Geologist

Monica Saculles, PE
Senior Geotechnical Engineer

PROFESSIONAL ENGINEER
LICENSED
14919
10-11-22
STATE OF IDAHO
MONICA SACULLES

ATLAS

CONTENTS

TABLES

APPENDICES

ATLAS

1. INTRODUCTION

This report presents results of a geotechnical investigation and analysis in support of data utilized in design of structures as defined in the 2018 International Building Code (IBC). Information in support of groundwater and stormwater issues pertinent to the practice of Civil Engineering is included. Observations and recommendations relevant to the earthwork phase of the project are also presented. Revisions in plans or drawings for the proposed development from those enumerated in this report should be brought to the attention of the soils engineer to determine whether changes in the provided recommendations are required. Deviations from noted subsurface conditions, if encountered during construction, should also be brought to the attention of the soils engineer.

1.1 Project Description

The proposed development is in the southeastern portion of the City of Donnelly, Valley County, ID, and occupies a portion of the NE¼SE¼ of Section 15, Township 16 North, Range 3 East, Boise Meridian. This project will consist of construction of 5 single-story self-storage structures ranging from 3,000 to 35,100 square-feet in size. The site is approximately 26.967 acres, though only the southern portion of the site will be developed at this time. Total settlements are limited to 1 inch. Loads of up to 1,200 pounds per lineal foot for wall footings, and column loads of up to 9,200 pounds were provided by Mr. Jeff Hatch of Hatch Design Architecture for settlement calculations. Additionally, assumptions have been made for traffic loading of pavements. Retaining walls up to 6-feet in height are anticipated as part of the project. Atlas has not been informed of the proposed grading plan.

1.2 Authorization

Authorization to perform this exploration and analysis was given in the form of a written authorization to proceed from Mr. Jeff Hatch of Hatch Design Architecture to Monica Saculles of Atlas Technical Consultants (Atlas), on August 31, 2022. Said authorization is subject to terms, conditions, and limitations described in the Professional Services Contract entered into between Hatch Design Architecture and Atlas. Our scope of services for the proposed development has been provided in our proposal dated August 9, 2022 and repeated below.

1.3 Scope of Investigation

The scope of this investigation included review of geologic literature and existing available geotechnical studies of the area, visual site reconnaissance of the immediate site, subsurface exploration of the site, field and laboratory testing of materials collected, and engineering analysis and evaluation of foundation materials.

2. SITE DESCRIPTION

2.1 Site Access

Access to the site may be gained via State Highway 55 from State Highway 44 in Eagle. Proceed north on State Highway 55 approximately 84 miles to its intersection with Old State Road. Head south on Old State Road approximately 475 feet to Eagle Lane. The site occupies the northwest corner of this intersection. The location is depicted on site maps included in the **Appendix**.

2.2 Regional Geology

Near Donnelly, Idaho, three major groups of Idaho rocks border one another; Granite of the Idaho batholith, flood-basalt flows of the Columbia River Basalt Group, and metamorphosed island-arc sedimentary and volcanic rocks of the Seven Devils Group. Donnelly is at the end of Long Valley, a major tectonic and structural feature of west central Idaho. The West Mountain escarpment is the high ridge formed along the west side of the Long Valley fault. West Mountain and Long Valley are part of a group of linear north-south ranges and valleys formed by block faulting during the late Tertiary and Quaternary. Miocene Columbia River Basalts overlie gneissic and granitic rocks of the Idaho batholith's west border and are commonly tilted 15° - 30° west. As West Mountain rose and Long Valley subsided, as much as 7,000 feet of alluvium accumulated in the valley. The broad, high elevation region north of Tamarack was mostly buried by an ice cap during Pleistocene glaciations. At the same time, cirque and small valley glaciers formed on West Mountain. During at least three periods of glaciations, major valley glaciers advanced from an icecap at the north end of Long Valley and formed large arcuate moraines. Most recently, during the Pinedale Glaciation, the North Fork valley glacier carved the basin and deposited the moraines which form Payette Lake, and the Lake Fork valley glacier formed the moraine of Little Payette Lake. During earlier glaciations the valley glaciers were thicker and longer, forming the prominent medial moraine, Timber Ridge.

2.3 General Site Characteristics

The site to be developed is approximately 26.967 acres in size; though only the southern portion of the site will be developed at this time. Currently, the site exists as bare pasture land. The site slopes gently downwards from the south to the north towards a shallow drainage, with approximately 6 feet of relief across the site. The surrounding properties consist of bare land and rural residences. Vegetation consists of native grasses.

Regional drainage is south and west toward Lake Cascade. Stormwater drainage for the site is achieved by percolation through surficial soils. The site is situated so that it is unlikely that it will receive any drainage from off-site sources. Stormwater drainage collection and retention systems are not in place on the project site and do not currently exist within the vicinity of the project site.

2.4 Regional Site Climatology and Geochemistry

According to the Western Regional Climate Center, the average precipitation for west central Idaho mountain valleys is on the order of 18 to 37 inches per year, with an annual snowfall of approximately 137 inches with an annual high of 242 inches. The monthly mean temperatures range from 22° F to 62° F with daily extremes ranging from -35° F to 100° F. The annual average wind speed is approximately 4 miles per hour from the northwest. Soils and sediments in the area are primarily derived from granitic materials and exhibit low electro-chemical potential for corrosion of metals or concretes. Surface waters, groundwaters, and soils in the region typically have pH levels ranging from 6.4 to 7.8.

3. SEISMIC SITE EVALUATION

3.1 Geoseismic Setting

Soils on site are classed as Site Class D in accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) publication ASCE/SEI 7-16. Structures constructed on this site should be designed per IBC requirements for such a seismic classification. Our investigation did not reveal hazards resulting from potential earthquake motions including: slope instability, liquefaction, and surface rupture caused by faulting or lateral spreading. Incidence and anticipated acceleration of seismic activity in the area is low.

3.2 Seismic Design Parameter Values

The United States Geological Survey National Seismic Hazard Maps (2008), includes a peak ground acceleration map. The map for 2% probability of exceedance in 50 years in the Western United States in standard gravity (g) indicates that a peak ground acceleration of 0.276 is appropriate for the project site based on a Site Class D.

The following section provides an assessment of the earthquake-induced earthquake loads for the site based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The MCE_R spectral response acceleration for short periods, S_{MS}, and at 1-second period, S_{M1}, are adjusted for site class effects as required by the 2018 IBC. Design spectral response acceleration parameters as presented in the 2018 IBC are defined as a 5% damped design spectral response acceleration at short periods, S_{DS}, and at 1-second period, S_{D1}.

The USGS National Seismic Hazards Mapping Project includes a program that provides values for ground motion at a selected site based on the same data that were used to prepare the USGS ground motion maps. The maps were developed using attenuation relationships for soft rock sites; the source model, assumptions, and empirical relationships used in preparation of the maps are described in Petersen and others (1996).

Table 1 – Seismic Design Values

Seismic Design Parameter	Design Value
Site Class	D "Default"
S_s	0.441 (g)
S_1	0.143 (g)
F_a	1.447
F_v	2.314
S_{MS}	0.639
S_{M1}	0.331
S_{DS}	0.426
S_{D1}	0.220

4. SOILS EXPLORATION

4.1 Exploration and Sampling Procedures

Field exploration conducted to determine engineering characteristics of subsurface materials included a reconnaissance of the project site and investigation by test pit. Test pit sites were located in the field by means of a Global Positioning System (GPS) device and are reportedly accurate to within ten feet. Upon completion of investigation, each test pit was backfilled with loose excavated materials. Re-excavation and compaction of these test pit areas are required prior to construction of overlying structures.

In addition, samples were obtained from representative soil strata encountered. Samples obtained have been visually classified in the field by professional staff, identified according to test pit number and depth, placed in sealed containers, and transported to our laboratory for additional testing. Subsurface materials have been described in detail on logs provided in the **Appendix**. Results of field and laboratory tests are also presented in the **Appendix**. Atlas recommends that these logs **not** be used to estimate fill material quantities.

4.2 Laboratory Testing Program

Along with our field investigation, a supplemental laboratory testing program was conducted to determine additional pertinent engineering characteristics of subsurface materials necessary in an analysis of anticipated behavior of the proposed structures. Laboratory tests were conducted in accordance with current applicable American Society for Testing and Materials (ASTM) specifications, and results of these tests are to be found in the **Appendix**. The laboratory testing program for this report included: Atterberg Limits Testing – ASTM D4318 and Grain Size Analysis – ASTM C117/C136.

4.3 Soil and Sediment Profile

The profile below represents a generalized interpretation for the project site. Note that on site soils strata, encountered between test pit locations, may vary from the individual soil profiles presented in the logs, which can be found in the **Appendix**.

Sandy silt soils were encountered at ground surface in test pits 1 through 3, and silty sand sediments were found at ground surface in test pits 4 and 5. These soils were light brown to brown, dry to slightly moist, and very stiff/medium dense, with fine to medium-grained sand. Organics were noted to depths of up to 1.0 foot. Clayey sand sediments were observed beneath surficial soils in all of the test pits except test pit 3. These sediments were light brown to gray-brown, slightly moist, and loose to medium dense, with fine to medium-grained sand. Silty clay with sand soils were found beneath clayey sands in test pit 1. These soils were gray, slightly moist, and stiff to very stiff, with fine-grained sand. Poorly graded sand with clay sediments were encountered at depth in the test pits. These sediments were light brown, slightly moist to saturated, and loose, with fine to medium-grained sand.

Competency of test pit sidewalls varied little across the site. In general, fine grained soils remained stable while more granular sediments readily sloughed. However, moisture contents will also affect wall competency with saturated soils having a tendency to readily slough when under load and unsupported.

4.4 Volatile Organic Scan

No environmental concerns were identified prior to commencement of the investigation. Therefore, soils obtained during on-site activities were not assessed for volatile organic compounds by portable photoionization detector. Samples obtained during our exploration activities exhibited no odors or discoloration typically associated with this type of contamination. Groundwater encountered did not exhibit obvious signs of contamination.

5. SITE HYDROLOGY

Existing surface drainage conditions are defined in the **General Site Characteristics** section. Information provided in this section is limited to observations made at the time of the investigation. Either regional or local ordinances may require information beyond the scope of this report.

5.1 Groundwater

During this field investigation, groundwater was encountered in test pits at depths ranging from 6.4 to 9.8 feet bgs. Soil moistures in the test pits were generally dry to slightly moist within surficial soils. Within the poorly graded sands with clay, soil moistures graded from slightly moist to saturated as the water table was approached and penetrated. In the vicinity of the project site, groundwater levels are controlled in large part by seasonal precipitation and runoff. Maximum groundwater elevations likely occur during late spring to early summer runoff season.

During a previous investigation performed in May 2006 approximately 300 feet to the southeast of the site, groundwater was encountered in test pits at depths ranging from 3.4 to 9.0 feet bgs. Additionally, according to Idaho Department of Water Resources (IDWR) well logs within approximately ¼-mile of the site, groundwater was measured at depths ranging from 8 to 24 feet. Atlas recommends that the piezometers installed in test pits 2 and 5 be monitored to determine seasonal high groundwater depths.

5.2 Soil Infiltration Rates

Soil permeability, which is a measure of the ability of a soil to transmit a fluid, was tested in the field. For this report, an estimation of infiltration is also presented using generally recognized values for each soil type and gradation. Of soils comprising the generalized soil profile for this study, silty clay with sand soils generally offer little permeability, with typical hydraulic infiltration rates of less than 2 inches per hour. Sandy silt soils will commonly exhibit infiltration rates from 2 to 4 inches per hour. Clayey sand sediments typically have infiltration rates ranging from 2 to 6 inches per hour. Poorly graded sand with clay sediments typically have infiltration rates ranging from 2 to 6 inches per hour. Silty sand sediments usually display rates of 4 to 8 inches per hour.

5.3 Infiltration Testing

Infiltration testing was conducted using an open test pit method. The test pit area will need to be re-excavated and compacted prior to construction of structures that will be sensitive to settlement. The test location was presoaked prior to testing. Pre-soaking increases soil moistures, which allows the tested soils to reach a saturated condition more readily during testing. Saturation of the tested soils is desirable in order to isolate the vertical component of infiltration by inhibiting horizontal seepage during testing.

On September 16, 2022, testing was conducted within poorly graded sand with clay sediments at a depth of 5.5 feet bgs in test pit 5. A stabilized infiltration rate of 2.16 inches per hour was achieved during testing. Atlas recommends a design infiltration rate of 1.08 inches per hour. The reason for the decreased infiltration rate is to account for long term saturation of the soils and the potential for less permeable soils to settle into the bottom of the infiltration facilities. Atlas recommends that all infiltration facilities be constructed in accordance with the local municipality requirements.

6. LATERAL EARTH PRESSURES

Retaining, below-grade, or basement walls will be subject to lateral earth pressures. The magnitude of earth pressure is a function of both type and compaction of backfill behind walls within the "active" zone, and allowable rotation of the top of the wall. The active zone is defined as the wedge of soil between the surface of the wall and a plane inclined 31 degrees from vertical passing through the base of the wall. Clayey soils must be completely removed from within the active zone.

The following recommendations should be used when dealing with lateral earth pressures on a gravity block: 1) a sliding frictional coefficient of 0.35 is appropriate considering native sandy silt soils, silty sand sediments, and clayey sand sediments, and 2) a sliding frictional coefficient of 0.45 is appropriate considering granular structural fill under typical conditions.

A state of plastic equilibrium is when the subject material is considered to be 1) homogeneous and unbounded and 2) at the point of incipient instability. This state is evaluated on the basis of unit weight, mechanical properties, and the definition of instability. For the purpose of this report, it is assumed that native relatively free draining soils and imported granular fill material will be the materials of concern regarding lateral earth pressures. If other materials are considered for use, Atlas must be contacted to provide alternate lateral earth pressure information. Furthermore, changes in natural soil moisture, such as can be imposed by site stormwater systems, can change the values listed below.

Below-grade restrained walls, such as basement walls, should be designed based on at-rest pressures. Active pressures are appropriate under conditions where the wall moves or rotates away from the soil mass at failure. Passive pressures are used for conditions where the wall moves toward the soil mass at failure. Rotation, or lateral movement, of the top of the wall equal to 0.002 times the height of the wall will be necessary for on-site soil backfill to achieve an "active" loading condition. Lateral movement of the top of the wall equal to 0.001 times the height of the wall will be necessary for the "active" pressure condition for imported granular structural backfill.

6.1 Retaining Wall Backfill Materials

For lateral earth pressure analysis, Atlas anticipates that the soils of interest will be the onsite native sandy silt soils and silty sand sediments. Clayey soils are not suitable for use as backfill on the soil side of walls. Seismic lateral earth pressures have also been provided in the following tables, and were calculated per the Whitman method. For sandy silt and silty sand sediments, the following values are applicable under non-surcharged, drained conditions.

Table 2 – Lateral Earth Pressure Values for Native Soil

Soil Type: Sandy Silt/Silty Sand			
Internal Friction Angle:	28 °	Dry Unit Weight:	110 pcf
Cohesion:	100 psf	Bouyant Unit Weight:	73 pcf
Natural Void Ratio:	0.7	Natural Moisture:	17 %
Ground Acceleration[2]:	0.276	Backfill Slope:	0 °
At rest lateral earth pressure:	68 pcf[1]		K_0= 0.53
Active lateral earth pressure:	46 pcf[1]		K_a= 0.36
Passive lateral earth pressure:	356 pcf[1]		K_p= 2.77
Seismic active lateral earth pressure:	73 pcf[1]		K_{ae}= 0.57
Seismic passive lateral earth pressure:	258 pcf[1]		K_{pe}= 2.01

[1]Lateral earth pressure values are in pounds per square foot, per foot of wall (psf/ft). Alternately, the values presented may also be considered as equivalent fluid with units of pounds per cubic foot (pcf).
[2]Ground acceleration obtained from the USGS Seismic Design Maps.

Imported, compacted, structural material, which is used to backfill the soil side of walls, must demonstrate the following characteristics:

Table 3 – Lateral Earth Pressure Values for Fill Materials

Soil Type: Compacted Sandy Gravel Fill			
Internal Friction Angle:	35 °	Dry Unit Weight:	128 pcf
Cohesion:	N/A	Bouyant Unit Weight:	83 pcf
Natural Void Ratio:	0.4	Natural Moisture:	5 %
Ground Acceleration[2]:	0.276	Backfill Slope:	0 °
At rest lateral earth pressure:	57 pcf[1]		K_0= 0.43
Active lateral earth pressure:	36 pcf[1]		K_a= 0.27
Passive lateral earth pressure:	496 pcf[1]		K_p= 3.69
Seismic active lateral earth pressure:	64 pcf[1]		K_{ae}= 0.48
Seismic passive lateral earth pressure:	359 pcf[1]		K_{pe}= 2.67

[1]Lateral earth pressure values are in pounds per square foot, per foot of wall (psf/ft). Alternately, the values presented may also be considered as equivalent fluid with units of pounds per cubic foot (pcf).
[2]Ground acceleration obtained from the USGS Seismic Design Maps.

Please note that the values for seismic lateral earth pressures are calculated using both the static and seismic coefficients. The effect of seismic conditions alone is the difference between the static and seismic lateral earth pressures presented above.

In the case that another material is used for backfill, Atlas should be consulted for alternate lateral earth pressure values. Granular structural fill should consist of 4-inch-minus select, clean, granular soil with no more than 30 percent oversize (greater than ¾-inch) material and no more than 5 percent non-plastic fines (passing the No. 200 sieve). Retaining wall and basement backfill must be placed in accordance with recommendations in the **Structural Fill** section of this report and must be properly compacted and tested.

Lateral earth pressure values do not incorporate specific factors of safety, and are only applicable for non-surcharged, drained conditions. Factors of safety, if applicable, should be integrated into the structural design of the wall. The preceding values are presented for idealized conditions relating to simple shallow structures. For complex structures, deep structures, or structures with significant perimeter landscaping, a soils engineer should be retained as part of the design team in developing appropriate project design parameters and construction specifications.

6.2 Retaining Wall Drainage

Atlas recommends that a drainage system be incorporated into the retained soil mass. This can be accomplished by installing wall and toe drains as a part of each soil-supporting wall system. In areas where there is potential for significantly high soil moistures within the supported soil mass, installation of drains within the soil mass is recommended. Particular consideration of roof drain effluent and irrigation water must be made. Further, these drainage systems must be separate from other retaining wall/foundation systems. If the granular structural fill option to reduce lateral pressures is used, a compacted low permeability soil cap is recommended within the upper 2 feet of the surface to limit surface water infiltration behind the walls.

7. FOUNDATION AND SLAB DISCUSSION AND RECOMMENDATIONS

Various foundation types have been considered for support of the proposed structures. Two requirements must be met in the design of foundations. First, the applied bearing stress must be less than the ultimate bearing capacity of foundation soils to maintain stability. Second, total and differential settlement must not exceed an amount that will produce an adverse behavior of the superstructure. Allowable settlement is usually exceeded before bearing capacity considerations become important; thus, allowable bearing pressure is normally controlled by settlement considerations.

Considering subsurface conditions and the proposed construction, it is recommended that the structures be founded upon conventional spread footings and continuous wall footings. Total settlements should not exceed 1 inch if the following design and construction recommendations are observed.

7.1 Foundation Design Recommendations

Based on data obtained from the site and test results from various laboratory tests performed, Atlas recommends the following guidelines for the net allowable soil bearing capacity:

Table 4 – Soil Bearing Capacity

Footing Depth	ASTM D1557 Subgrade Compaction	Net Allowable Soil Bearing Capacity
Footings must bear on competent, undisturbed, native sandy silt soils, silty sand sediments, clayey sand sediments, or compacted structural fill. Existing organics must be completely removed from below foundation elements.[1] Excavation depths ranging from roughly 0.5 to 1.0 foot should be anticipated to expose proper bearing soils.[2]	Not Required for Native Soil 95% for Structural Fill	2,000 lbs/ft^2

[1]It will be required for Atlas personnel to verify the bearing soil suitability for each structure at the time of construction.
[2]Depending on the time of year construction takes place, the subgrade soils may be unstable because of high moisture contents. If unstable conditions are encountered, over-excavation and replacement with granular structural fill and/or use of geotextiles may be required.

The following sliding frictional coefficient values should be used: 1) 0.35 for footings bearing on native sandy silt soils, silty sand sediments, and clayey sand sediments and 2) 0.45 for footings bearing on granular structural fill. A passive lateral earth pressure of 356 pounds per square foot per foot (psf/ft) should be used for sandy silt soils, silty sand sediments, and clayey sand sediments. For compacted sandy gravel fill, a passive lateral earth pressure of 496 psf/ft should be used.

Footings should be proportioned to meet either the stated soil bearing capacity or the 2018 IBC minimum requirements. Total settlement should be limited to approximately 1 inch, and differential settlement should be limited to approximately ½ inch. Objectionable soil types encountered at the bottom of footing excavations should be removed and replaced with structural fill. Excessively loose or soft areas that are encountered in the footings subgrade will require over-excavation and backfilling with structural fill. To minimize the effects of slight differential movement that may occur because of variations in the character of supporting soils and seasonal moisture content, Atlas recommends continuous footings be suitably reinforced to make them as rigid as possible. Per Valley County code requirements, footing frost depth is a minimum of 24 inches. However, Atlas recommends that the bottom of external footings be 36 inches below finished grad. The reason for the increased footing frost depth is because Atlas has repeatedly seen frost depths of 36 inches in the vicinity of the project site.

7.2 Floor Slab-on-Grade

Organic, loose, or obviously compressive materials must be removed prior to placement of concrete floors or floor-supporting fill. In addition, the remaining subgrade should be treated in accordance with guidelines presented in the **Earthwork** section. Areas of excessive yielding should be excavated and backfilled with structural fill. Fill used to increase the elevation of the floor slab should meet requirements detailed in the **Structural Fill** section. Fill materials must be compacted to a minimum 95 percent of the maximum dry density as determined by ASTM D1557.

A free-draining granular mat should be provided below slabs-on-grade to provide drainage and a uniform and stable bearing surface. This should be a minimum of 4 inches in thickness and properly compacted. The mat should consist of a sand and gravel mixture, complying with Idaho Standards for Public Works Construction (ISPWC) specifications for ¾-inch (Type 1) crushed aggregate. The granular mat should be compacted to no less than 95 percent of the maximum dry density as determined by ASTM D1557. A moisture-retarder should be placed beneath floor slabs to minimize potential ground moisture effects on moisture-sensitive floor coverings. The moisture-retarder should be at least 15-mil in thickness and have a permeance of less than 0.01 US perms as determined by ASTM E96. Placement of the moisture-retarder will require special consideration with regard to effects on the slab-on-grade and should adhere to recommendations outlined in the ACI 302.1R and ASTM E1745 publications. Upon request, Atlas can provide further consultation regarding installation.

8. PAVEMENT DISCUSSION AND RECOMMENDATIONS

Atlas has made assumptions for traffic loading variables based on the character of the proposed construction. The Client shall review and understand these assumptions to make sure they reflect intended use and loading of pavements both now and in the future. Based on experience with soils in the region, a subgrade California Bearing Ratio (CBR) value of 5 has been assumed for near-surface silty soils on site. The following are minimum thickness requirements for assured pavement function. Depending on site conditions, additional work, e.g. soil preparation, may be required to support construction equipment. These have been listed within the **Soft Subgrade Soils** section.

8.1 Flexible Pavement Sections

The American Association of State Highway and Transportation Officials (AASHTO) design method has been used to calculate the following pavement sections. Calculation sheets provided in the **Appendix** indicate the soils constant, traffic loading, traffic projections, and material constants used to calculate the pavement sections. Atlas recommends that materials used in the construction of asphaltic concrete pavements meet requirements of the ISPWC Standard Specification for Highway Construction. Construction of the pavement section should be in accordance with these specifications and should adhere to guidelines recommended in the section on **Construction Considerations**.

Table 5 – AASHTO Flexible Pavement Specifications

Pavement Section Component	Driveways and Parking Light Duty	Driveways and Parking Heavy Duty
Asphaltic Concrete	2.5 Inches	3.0 Inches
Crushed Aggregate Base	4.0 Inches	4.0 Inches
Structural Subbase	6.0 Inches	8.0 Inches
Compacted Subgrade	Not Required	Not Required

[1]It will be required for Atlas personnel to verify subgrade competency at the time of construction.

- Asphaltic Concrete: Asphalt mix design shall meet the requirements of ISPWC, Section 810. Materials shall be placed in accordance with ISPWC Standard Specifications for Highway Construction.
- Aggregate Base: Material complying with ISPWC Standards for Crushed Aggregate Materials.
- Structural Subbase: Granular structural fill material complying with the requirements detailed in the **Structural Fill** section of this report except that the maximum material diameter is no more than $^2/_3$ the component thickness. Gradation and suitability requirements shall be per ISPWC Section 801, Table 1.

8.2 Common Pavement Section Construction Issues

The subgrade upon which above pavement sections are to be constructed must be properly stripped, inspected, and proof-rolled. Proof rolling of subgrade soils should be accomplished using a heavy rubber-tired, fully loaded, tandem-axle dump truck or equivalent. Verification of subgrade competence by Atlas personnel at the time of construction is required. Fill materials on the site must demonstrate the indicated compaction prior to placing material in support of the pavement section. Atlas anticipated that pavement areas will be subjected to moderate traffic. Subgrade clayey and silty soils near and above optimum moisture contents may pump during compaction. Pumping or soft areas must be removed and replaced with structural fill.

Fill material and aggregates in support of the pavement section must be compacted to no less than 95 percent of the maximum dry density as determined by ASTM D698 for flexible pavements and by ASTM D1557 for rigid pavements. If a material placed as a pavement section component cannot be tested by usual compaction testing methods, then compaction of that material must be approved by observed proof rolling. Minor deflections from proof rolling for flexible pavements are allowable. Deflections from proof rolling of rigid pavement support courses should not be visually detectable.

Atlas recommends that rigid concrete pavement be provided for heavy garbage receptacles. This will eliminate damage caused by the considerable loading transferred through the small steel wheels onto asphaltic concrete. Rigid concrete pavement should consist of Portland Cement Concrete Pavement (PCCP) generally adhering to ITD specifications for Urban Concrete. PCCP should be 6 inches thick on a 4-inch drainage fill course (see **Floor Slab-on-Grade** section), and should be reinforced with welded wire fabric. Control joints must be on 12-foot centers or less.

9. CONSTRUCTION CONSIDERATIONS

Recommendations in this report are based upon structural elements of the project being founded on competent, native sandy silt soils, silty sand sediments, clayey sand sediments, or compacted structural fill. Structural areas should be stripped to an elevation that exposes these soil types.

9.1 Earthwork

Excessively organic soils, deleterious materials, or disturbed soils generally undergo high volume changes when subjected to loads, which is detrimental to subgrade behavior in the area of pavements, floor slabs, structural fills, and foundations. Grasses with associated root systems were noted at the time of our investigation. It is recommended that organic or disturbed soils, if encountered, be removed to depths of 1 foot (minimum), and wasted or stockpiled for later use. Stripping depths should be adjusted in the field to assure that the entire root zone or disturbed zone or topsoil are removed prior to placement and compaction of structural fill materials. Exact removal depths should be determined during grading operations by Atlas personnel, and should be based upon subgrade soil type, composition, and firmness or soil stability.

If underground storage tanks, underground utilities, wells, or septic systems are discovered during construction activities, they must be decommissioned then removed or abandoned in accordance with governing Federal, State, and local agencies. Excavations developed as the result of such removal must be backfilled with structural fill materials as defined in the **Structural Fill** section.

Atlas should oversee subgrade conditions (i.e., moisture content) as well as placement and compaction of new fill (if required) after native soils are excavated to design grade. Recommendations for structural fill presented in this report can be used to minimize volume changes and differential settlements that are detrimental to the behavior of footings, pavements, and floor slabs. Sufficient density tests should be performed to properly monitor compaction. For structural fill beneath building structures, one in-place density test per lift for every 5,000 square feet is recommended. In parking and driveway areas, this can be decreased to one test per lift for every 10,000 square feet.

9.2 Dry Weather

If construction is to be conducted during dry seasonal conditions, many problems associated with soft soils may be avoided. However, some rutting of subgrade soils may be induced by shallow groundwater conditions related to springtime runoff or irrigation activities during late summer through early fall. Solutions to problems associated with soft subgrade soils are outlined in the **Soft Subgrade Soils** section. Problems may also arise because of lack of moisture in native and fill soils at time of placement. This will require the addition of water to achieve near-optimum moisture levels. Low-cohesion soils exposed in excavations may become friable, increasing chances of sloughing or caving. Measures to control excessive dust should be considered as part of the overall health and safety management plan.

9.3 Wet Weather

If construction is to be conducted during wet seasonal conditions (commonly from mid-November through May), problems associated with soft soils must be considered as part of the construction plan. During this time of year, fine-grained soils such as silts and clays will become unstable with increased moisture content, and eventually deform or rut. Additionally, constant low temperatures reduce the possibility of drying soils to near optimum conditions.

9.4 Soft Subgrade Soils

Shallow fine-grained subgrade soils that are high in moisture content should be expected to pump and rut under construction traffic. During periods of wet weather, construction may become very difficult if not impossible. The following recommendations and options have been included for dealing with soft subgrade conditions:

- Track-mounted vehicles should be used to strip the subgrade of root matter and other deleterious debris. Heavy rubber-tired equipment should be prohibited from operating directly on the native subgrade and areas in which structural fill materials have been placed. Construction traffic should be restricted to designated roadways that do not cross, or cross on a limited basis, proposed roadway or parking areas.

- Soft areas can be over-excavated and replaced with granular structural fill.
- Construction roadways on soft subgrade soils should consist of a minimum 2-foot thickness of large cobbles of 4 to 6 inches in diameter with sufficient sand and fines to fill voids. Construction entrances should consist of a 6-inch thickness of clean, 2-inch minimum, angular drain-rock and must be a minimum of 10 feet wide and 30 to 50 feet long. During the construction process, top dressing of the entrance may be required for maintenance.
- Scarification and aeration of subgrade soils can be employed to reduce the moisture content of wet subgrade soils. After stripping is complete, the exposed subgrade should be ripped or disked to a depth of 1½ feet and allowed to air dry for 2 to 4 weeks. Further disking should be performed on a weekly basis to aid the aeration process.
- Alternative soil stabilization methods include use of geotextiles, lime, and cement stabilization. Atlas is available to provide recommendations and guidelines at your request.

9.5 Frozen Subgrade Soils

Prior to placement of structural fill materials or foundation elements, frozen subgrade soils must either be allowed to thaw or be stripped to depths that expose non-frozen soils and wasted or stockpiled for later use. Stockpiled materials must be allowed to thaw and return to near-optimal conditions prior to use as structural fill.

The onsite, shallow clayey and silty soils are susceptible to frost heave during freezing temperatures. For exterior flatwork and other structural elements, adequate drainage away from subgrades is critical. Compaction and use of structural fill will also help to mitigate the potential for frost heave. Complete removal of frost susceptible soils for the full frost depth, followed by replacement with a non-frost susceptible structural fill, can also be used to mitigate the potential for frost heave. Atlas is available to provide further guidance/assistance upon request.

9.6 Structural Fill

Soils recommended for use as structural fill are those classified as GW, GP, SW, and SP in accordance with the Unified Soil Classification System (USCS) (ASTM D2487). Use of silty soils (USCS designation of GM, SM, and ML) as structural fill may be acceptable. However, use of silty soils (GM, SM, and ML) as structural fill below footings is prohibited. These materials require very high moisture contents for compaction and require a long time to dry out if natural moisture contents are too high and may also be susceptible to frost heave under certain conditions. Therefore, these materials can be quite difficult to work with as moisture content, lift thickness, and compactive effort becomes difficult to control. If silty soil is used for structural fill, lift thicknesses should not exceed 6 inches (loose), and fill material moisture must be closely monitored at both the working elevation and the elevations of materials already placed. Following placement, silty soils must be protected from degradation resulting from construction traffic or subsequent construction.

Recommended granular structural fill materials, those classified as GW, GP, SW, and SP, should consist of a 6-inch minus select, clean, granular soil with no more than 50 percent oversize (greater than ¾-inch) material and no more than 12 percent fines (passing No. 200 sieve). These fill materials should be placed in layers not to exceed 12 inches in loose thickness. Prior to placement of structural fill materials, surfaces must be prepared as outlined in the **Construction Considerations** section. Structural fill material should be moisture-conditioned to achieve optimum moisture content prior to compaction. For structural fill below footings, areas of compacted backfill must extend outside the perimeter of the footings for a distance equal to the thickness of fill between the bottom of foundation and underlying soils, or 5 feet, whichever is less. All fill materials must be monitored during placement and tested to confirm compaction requirements, outlined below, have been achieved.

Each layer of structural fill must be compacted, as outlined below:

- Below Structures and Rigid Pavements: A minimum of 95 percent of the maximum dry density as determined by ASTM D1557.
- Below Flexible Pavements: A minimum of 92 percent of the maximum dry density as determined by ASTM D1557 or 95 percent of the maximum dry density as determined by ASTM D698.

The ASTM D1557 test method must be used for samples containing up to 40 percent oversize (greater than ¾-inch) particles. If material contains more than 40 percent but less than 50 percent oversize particles, compaction of fill must be confirmed by proof rolling each lift with a 10-ton vibratory roller (or equivalent) until the maximum density has been achieved. Density testing must be performed after each proof rolling pass until the in-place density test results indicate a drop (or no increase) in the dry density, defined as maximum density or "break over" point. The number of required passes should be used as the requirements on the remainder of fill placement. Material should contain sufficient fines to fill void spaces, and must not contain more than 50 percent oversize particles.

9.7 Backfill of Walls

Backfill materials must conform to the requirements of structural fill, as defined in this report. For wall heights greater than 2.5 feet, the maximum material size should not exceed 4 inches in diameter. Placing oversized material against rigid surfaces interferes with proper compaction, and can induce excessive point loads on walls. Backfill shall not commence until the wall has gained sufficient strength to resist placement and compaction forces. Further, retaining walls above 2.5 feet in height shall be backfilled in a manner that will limit the potential for damage from compaction methods and/or equipment. It is recommended that only small hand-operated compaction equipment be used for compaction of backfill within a horizontal distance equal to the height of the wall, measured from the back face of the wall.

Backfill should be compacted in accordance with the specifications for structural fill, except in those areas where it is determined that future settlement is not a concern, such as planter areas. In nonstructural areas, backfill must be compacted to a firm and unyielding condition.

9.8 Excavations

Shallow excavations that do not exceed 4 feet in depth may be constructed with side slopes approaching vertical. Below this depth, it is recommended that slopes be constructed in accordance with Occupational Safety and Health Administration (OSHA) regulations, Section 1926, Subpart P. Based on these regulations, on-site soils are classified as type "C" soil, and as such, excavations within these soils should be constructed at a maximum slope of 1½ feet horizontal to 1 foot vertical (1½:1) for excavations up to 20 feet in height. Excavations in excess of 20 feet will require additional analysis. Note that these slope angles are considered stable for short-term conditions only, and will not be stable for long-term conditions.

During the subsurface exploration, test pit sidewalls generally exhibited little indication of collapse; however, sloughing of native granular sediments from test pit sidewalls was observed, particularly after penetration of the water table. For deep excavations, native granular sediments cannot be expected to remain in position. These materials are prone to failure and may collapse, thereby undermining upper soil layers. This is especially true when excavations approach depths near the water table. Care must be taken to ensure that excavations are properly backfilled in accordance with procedures outlined in this report.

9.9 Groundwater Control

Groundwater was encountered during the investigation but is anticipated to be below the depth of most construction. Excavations below the water table will require a dewatering program. Dewatering will be required prior to placement of fill materials. Placement of concrete can be accomplished through water by the use of a tremie. It may be possible to discharge dewatering effluent to remote portions of the site, to a sump, or to a pit. This will essentially recycle effluent, thus eliminating the need to enter into agreements with local drainage authorities. Should the scope of the proposed project change, Atlas should be contacted to provide more detailed groundwater control measures.

Special precautions may be required for control of surface runoff and subsurface seepage. It is recommended that runoff be directed away from open excavations. Silty and clayey soils may become soft and pump if subjected to excessive traffic during time of surface runoff. Ponded water in construction areas should be drained through methods such as trenching, sloping, crowning grades, nightly smooth drum rolling, or installing a French drain system. Additionally, temporary or permanent driveway sections should be constructed if extended wet weather is forecasted.

10. GENERAL COMMENTS

Based on the subsurface conditions encountered during this investigation and available information regarding the proposed development, the site is adequate for the planned construction. When plans and specifications are complete, and if significant changes are made in the character or location of the proposed structure, consultation with Atlas must be arranged as supplementary recommendations may be required. Suitability of subgrade soils and compaction of structural fill materials must be verified by Atlas personnel prior to placement of structural elements. Additionally, monitoring and testing should be performed to verify that suitable materials are used for structural fill and that proper placement and compaction techniques are utilized.

11. REFERENCES

American Association of State Highway and Transportation Officials (AASHTO) (1993). AASHTO Guide for Design of Pavement Structures 1993. Washington D.C.: AASHTO.

American Concrete Institute (ACI) (2015). Guide for Concrete Floor and Slab Construction: ACI 302.1R. Farmington Hills, MI: ACI.

American Society of Civil Engineers (2021). ASCE 7 Hazards Tool: Web Interface [Online] Available: <https://asce7hazardtool.online/> (2021).

American Society of Civil Engineers (ASCE) (2013). Minimum Design Loads for Buildings and Other Structures: ASCE/SEI 7-16. Reston, VA: ASCE.

American Society for Testing and Materials (ASTM) (2017). Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing: ASTM C117. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2014). Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates: ASTM C136. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2012). Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort: ASTM D698. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2012). Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort: ASTM D1557. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2014). Standard Test Methods for California Bearing Ratio: ASTM D1883. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2017). Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System): ASTM D2487. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2017). Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils: ASTM D4318. West Conshohocken, PA: ASTM.

American Society for Testing and Materials (ASTM) (2011). Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs: ASTM E1745. West Conshohocken, PA: ASTM.

Desert Research Institute. Western Regional Climate Center. [Online] Available: <http://www.wrcc.dri.edu/> (2021).

Idaho Department of Water Resources. [Online] Well Construction & Drilling, Find a Well Mapping Tool. <http://www.idwr.idaho.gov/wells/find-a-well.html> (2021).

International Building Code Council (2018). International Building Code, 2018. Country Club Hills, IL: Author.

Local Highway Technical Assistance Council (LHTAC) (2017). Idaho Standards for Public Works Construction, 2017. Boise, ID: Author.

U.S. Department of Labor, Occupational Safety and Health Administration. CFR 29, Part 1926, Subpart P: Safety and Health Regulations for Construction, Excavations (1986). [Online] Available: <www.osha.gov> (2021).

Appendix I WARRANTY AND LIMITING CONDITIONS

Atlas warrants that findings and conclusions contained herein have been formulated in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology only for the site and project described in this report. These engineering methods have been developed to provide the client with information regarding apparent or potential engineering conditions relating to the site within the scope cited above and are necessarily limited to conditions observed at the time of the site visit and research. Field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above.

Exclusive Use

This report was prepared for exclusive use of the property owner(s), at the time of the report, and their retained design consultants ("Client"). Conclusions and recommendations presented in this report are based on the agreed-upon scope of work outlined in this report together with the Contract for Professional Services between the Client and Atlas Technical Consultants ("Consultant"). Use or misuse of this report, or reliance upon findings hereof, by parties other than the Client is at their own risk. Neither Client nor Consultant make representation of warranty to such other parties as to accuracy or completeness of this report or suitability of its use by such other parties for purposes whatsoever, known or unknown, to Client or Consultant. Neither Client nor Consultant shall have liability to indemnify or hold harmless third parties for losses incurred by actual or purported use or misuse of this report. No other warranties are implied or expressed.

Report Recommendations are Limited and Subject to Misinterpretation

There is a distinct possibility that conditions may exist that could not be identified within the scope of the investigation or that were not apparent during our site investigation. Findings of this report are limited to data collected from noted explorations advanced and do not account for unidentified fill zones, unsuitable soil types or conditions, and variability in soil moisture and groundwater conditions. To avoid possible misinterpretations of findings, conclusions, and implications of this report, Atlas should be retained to explain the report contents to other design professionals as well as construction professionals.

Since actual subsurface conditions on the site can only be verified by earthwork, note that construction recommendations are based on general assumptions from selective observations and selective field exploratory sampling. Upon commencement of construction, such conditions may be identified that require corrective actions, and these required corrective actions may impact the project budget. Therefore, construction recommendations in this report should be considered preliminary, and Atlas should be retained to observe actual subsurface conditions during earthwork construction activities to provide additional construction recommendations as needed.

Since geotechnical reports are subject to misinterpretation, **do not** separate the soil logs from the report. Rather, provide a copy of, or authorize for their use, the complete report to other design professionals or contractors. Locations of exploratory sites referenced within this report should be considered approximate locations only. For more accurate locations, services of a professional land surveyor are recommended.

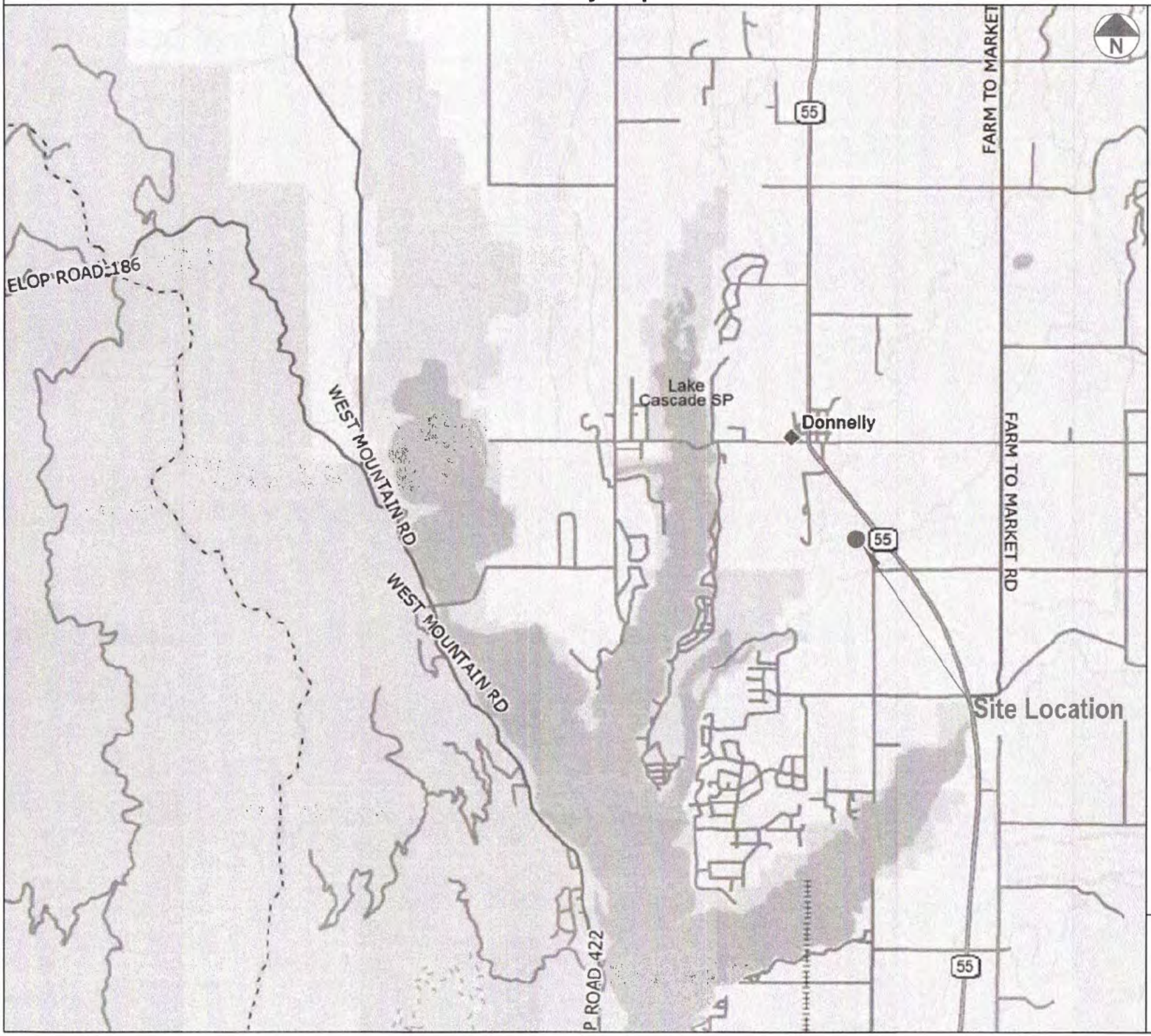
This report is also limited to information available at the time it was prepared. In the event additional information is provided to Atlas following publication of our report, it will be forwarded to the client for evaluation in the form received.

Environmental Concerns

Comments in this report concerning either onsite conditions or observations, including soil appearances and odors, are provided as general information. These comments are not intended to describe, quantify, or evaluate environmental concerns or situations. Since personnel, skills, procedures, standards, and equipment differ, a geotechnical investigation report is not intended to substitute for a geoenvironmental investigation or a Phase II/III Environmental Site Assessment. If environmental services are needed, Atlas can provide, via a separate contract, those personnel who are trained to investigate and delineate soil and water contamination.

Vicinity Map

Figure 1



MAP NOTES:

- Delorme Street Atlas
- Not to Scale

LEGEND

Approximate Site Location

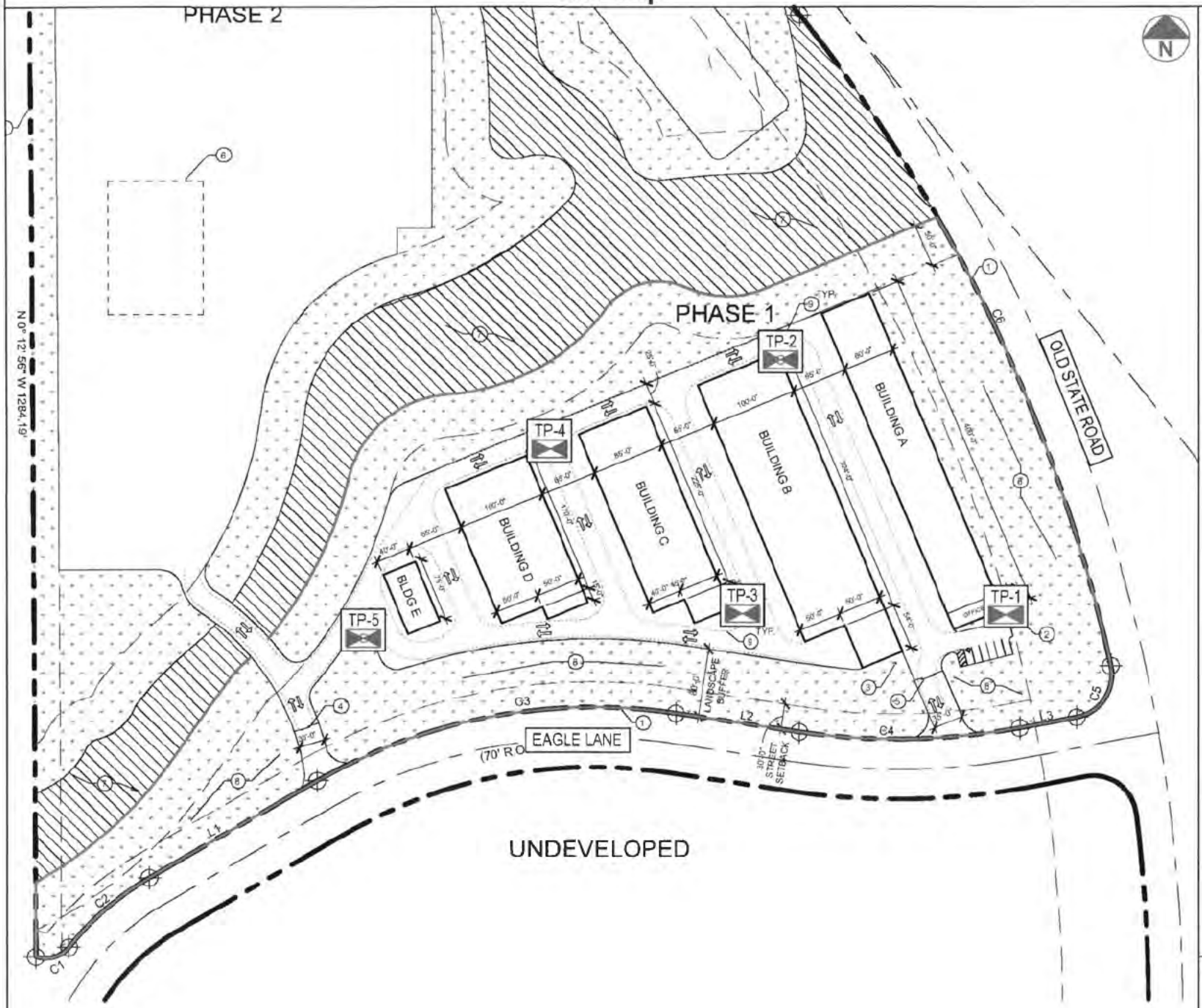
Shoemaker Donnelly
NWC Old State Road & Eagle Lane
Donnelly, ID

Modified from DeLorme by: CCW
September 30, 2022
Drawing: B222055g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Site Map

Figure 2



NOTES:

- Not to Scale

LEGEND

Approximate Area of Work

Approximate Atlas Test Pit Location

Approximate Atlas Test Pit Location with Piezometer

Shoemaker Donnelly

NWC Old State Road & Eagle Lane
Donnelly, ID

Modified by: CCW
September 30, 2022
Drawing: B222055g

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2791 S. Victory View Way
Boise, ID 83709

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Appendix IV GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-1
Date Advanced: September 15, 2022
Excavated by: Tom Bateman
Logged by: Colby Meyer, GIT

Latitude: 44.720835
Longitude: -116.068912
Depth to Water Table: 9.8 feet bgs
Total Depth: 10.0 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	USDA Soil Classification and Design Soil Subgroup	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-3.0	Sandy Silt (ML): Brown, dry to slightly moist, very stiff, with fine to medium-grained sand. --Organics noted to 0.8 foot bgs.	Silt Loam B-2			2.5-4.0	
3.0-4.4	Clayey Sand (SC): Light brown, slightly moist, loose to medium dense, with fine-grained sand.	Sandy Clay Loam C-1				
4.4-7.1	Silty Clay with Sand (CL-ML): Gray, slightly moist, stiff to very stiff, with fine-grained sand.	Silt Loam B-2	GS	5.0-6.0		A
7.1-10.0	Poorly Graded Sand with Clay (SP-SC): Light brown, slightly moist to saturated, loose, with fine to medium-grained sand.	Loamy Sand A-2b				

Notes: See Site Map for test pit location.

Lab Test ID	Sieve Analysis (% Passing)		
	Sand	Silt	Clay
A	14.8	72.7	12.5

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GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-2
Date Advanced: September 15, 2022
Excavated by: Tom Bateman
Logged by: Colby Meyer, GIT

Latitude: 44.721612
Longitude: -116.069896
Depth to Water Table: 6.4 feet bgs
Total Depth: 10.0 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	USDA Soil Classification and Design Soil Subgroup	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.3	Sandy Silt (ML): Brown, dry to slightly moist, very stiff, with fine to medium-grained sand. --Organics noted to 0.7 foot bgs.	Silt Loam B-2			3.0	
2.3-4.7	Clayey Sand (SC): Light brown, slightly moist, loose to medium dense, with fine-grained sand.	Sandy Clay Loam C-1				
4.7-10.0	Poorly Graded Sand with Clay (SP-SC): Light brown, slightly moist to saturated, loose, with fine to medium-grained sand.	Loamy Sand A-2b				

Notes: See Site Map for test pit location.
Piezometer installed to a depth of 10.0 feet bgs.

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GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-3
Date Advanced: September 15, 2022
Excavated by: Tom Bateman
Logged by: Colby Meyer, GIT

Latitude: 44.720885
Longitude: -116.070019
Depth to Water Table: 6.5 feet bgs
Total Depth: 6.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	USDA Soil Classification and Design Soil Subgroup	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-3.0	Sandy Silt (ML): Light brown to brown, dry to slightly moist, very stiff, with fine to medium-grained sand. --Organics noted to 1.0 foot bgs.	Silt Loam B-2	GS	2.0-3.0	2.5-4.0	B
3.0-6.9	Poorly Graded Sand with Clay (SP-SC): Light brown, slightly moist to saturated, loose, with fine to medium-grained sand.	Loamy Sand A-2b				

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
B	14.2	NP	NP	100	100	90	71	61.0

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GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-4
Date Advanced: September 15, 2022
Excavated by: Tom Bateman
Logged by: Colby Meyer, GIT

Latitude: 44.721288
Longitude: -116.070941
Depth to Water Table: 8.7 feet bgs
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	USDA Soil Classification and Design Soil Subgroup	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-4.0	Silty Sand (SM): Brown, dry to slightly moist, medium dense, with fine to medium-grained sand. --Organics noted to 0.5 foot bgs.	Loam B-2	GS	2.0-3.0		C
4.0-5.6	Clayey Sand (SC): Light brown to gray-brown, slightly moist, medium dense, with fine-grained sand.	Sandy Clay Loam C-1				
5.6-8.9	Poorly Graded Sand with Clay (SP-SC): Light brown, slightly moist to saturated, loose, with fine to medium-grained sand.	Loamy Sand A-2b				

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
C	12.7	NP	NP	100	99	84	64	41.1

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GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-5
Date Advanced: September 15, 2022
Excavated by: Tom Bateman
Logged by: Colby Meyer, GIT

Latitude: 44.720778
Longitude: -116.071521
Depth to Water Table: 9.5 feet bgs
Total Depth: 9.8 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	USDA Soil Classification and Design Soil Subgroup	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.8	Silty Sand (SM): Brown, dry to slightly moist, medium dense, with fine-grained sand. --Organics noted to 0.5 foot bgs.	Loam B-2				
2.8-5.0	Clayey Sand (SC): Light brown, slightly moist, loose to medium dense, with fine to medium-grained sand.	Sandy Clay Loam C-1				
5.0-9.8	Poorly Graded Sand with Clay (SP-SC): Light brown, slightly moist to saturated, loose, with fine to medium-grained sand.	Loamy Sand A-2b				

Notes: See Site Map for test pit location.
Piezometer installed to a depth of 9.8 feet bgs.
Infiltration testing conducted at a depth of 5.5 feet bgs.

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Appendix V GEOTECHNICAL GENERAL NOTES

Unified Soil Classification System			
Major Divisions		**Symbol**	**Soil Descriptions**
Coarse-Grained Soils < 50% passes No.200 sieve	Gravel & Gravelly Soils < 50% coarse	GW	Well-graded gravels; gravel/sand mixtures with little or no fines
		GP	Poorly-graded gravels; gravel/sand mixtures with little or no fines
		GM	Silty gravels; poorly-graded gravel/sand/silt mixtures
		GC	Clayey gravels; poorly-graded gravel/sand/clay mixtures
	Sand & Sandy Soils > 50% coarse fraction	SW	Well-graded sands; gravelly sands with little or no fines
		SP	Poorly-graded sands; gravelly sands with little or no fines
		SM	Silty sands; poorly-graded sand/gravel/silt mixtures
		SC	Clayey sands; poorly-graded sand/gravel/clay mixtures
Fine-Grained Soils > 50% passes No.200 sieve	Silts & Clays LL < 50	ML	Inorganic silts; sandy, gravelly or clayey silts
		CL	Lean clays; inorganic, gravelly, sandy, or silty, low to medium-plasticity clays
		OL	Organic, low-plasticity clays and silts
	Silts & Clays LL > 50	MH	Inorganic, elastic silts; sandy, gravelly or clayey elastic silts
		CH	Fat clays; high-plasticity, inorganic clays
		OH	Organic, medium to high-plasticity clays and silts
Highly Organic Soils		PT	Peat, humus, hydric soils with high organic content

Relative Density and Consistency Classification	
Coarse-Grained Soils	**SPT Blow Counts (N)**
Very Loose:	< 4
Loose:	4-10
Medium Dense:	10-30
Dense:	30-50
Very Dense:	> 50
Fine-Grained Soils	**SPT Blow Counts (N)**
Very Soft:	< 2
Soft:	2-4
Medium Stiff:	4-8
Stiff:	8-15
Very Stiff:	15-30
Hard:	> 30

Moisture Content and Cementation Classification	
Description	**Field Test**
Dry	Absence of moisture, dry to touch
Slightly Moist	Damp, but no visible moisture
Moist	Visible moisture
Wet	Visible free water
Saturated	Soil is usually below water table
Description	**Field Test**
Weak	Crumbles or breaks with handling or slight finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

Particle Size	
Boulders:	> 12 in.
Cobbles:	12 to 3 in.
Gravel:	3 in. to 5 mm
Coarse-Grained Sand:	5 to 0.6 mm
Medium-Grained Sand:	0.6 to 0.2 mm
Fine-Grained Sand:	0.2 to 0.075 mm
Silts:	0.075 to 0.005 mm
Clays:	< 0.005 mm

Acronym List	
GS	grab sample
LL	Liquid Limit
M	moisture content
NP	non-plastic
PI	Plasticity Index
Q_p	penetrometer value, unconfined compressive strength, tsf
V	vane value, ultimate shearing strength, tsf

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Appendix VI AASHTO PAVEMENT DESIGN

Pavement Section Design Location: Shoemaker Donnelly, Light Duty

Average Daily Traffic Count:	200	All Lanes & Both Directions		
Design Life:	20	Years		
Percent of Traffic in Design Lane:	50%			
Terminal Seviceability Index (Pt):	2.5			
Level of Reliability:	95			
Subgrade CBR Value:	5		**Subgrade Mr:**	7,500

Calculation of Design-18 kip ESALs

	Daily Traffic	Growth Rate	Load Factors	Design ESALs
Passenger Cars:	83	2.0%	0.0008	589
RV's	0	2.0%	0.6806	0
Panel & Pickup Trucks:	15	2.0%	0.0122	1,623
2-Axle, 6-Tire Trucks:	1	2.0%	0.1890	1,676
Emergency Vehicles:	1.0	2.0%	4.4800	39,731
Dump Trucks:	0	2.0%	3.6300	0
Tractor Semi Trailer Trucks:	0	2.0%	2.3719	0
Double Trailer Trucks	0	2.0%	2.3187	0
Heavy Tractor Trailer Combo Trucks:	0	2.0%	2.9760	0
Average Daily Traffic in Design Lane:	100			

Total Design Life 18-kip ESALs:	43,619
Actual Log (ESALs):	4.640
Trial SN:	2.21
Trial Log (ESALs):	4.653
Pavement Section Design SN:	2.21

	Design Depth Inches	Structural Coefficient	Drainage Coefficient
Asphaltic Concrete:	2.50	0.42	n/a
Asphalt-Treated Base:	0.00	0.25	n/a
Cement-Treated Base:	0.00	0.17	n/a
Crushed Aggregate Base:	4.00	0.14	1.0
Subbase:	6.00	0.10	1.0
Special Aggregate Subgrade:	0.00	0.09	0.9

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AASHTO PAVEMENT DESIGN

Pavement Section Design Location: Shoemaker Donnelly, Heavy Duty

Average Daily Traffic Count:	200	All Lanes & Both Directions		
Design Life:	20	Years		
Percent of Traffic in Design Lane:	50%			
Terminal Seviceability Index (Pt):	2.5			
Level of Reliability:	95			
Subgrade CBR Value:	5		**Subgrade Mr:**	7,500

Calculation of Design-18 kip ESALs

	Daily Traffic	Growth Rate	Load Factors	Design ESALs
Passenger Cars:	56	2.0%	0.0008	397
RV's	10	2.0%	0.6806	60,359
Panel & Pickup Trucks:	25	2.0%	0.0122	2,705
2-Axle, 6-Tire Trucks:	8	2.0%	0.1890	13,409
Emergency Vehicles:	1.0	2.0%	4.4800	39,731
Dump Trucks:	0	2.0%	3.6300	0
Tractor Semi Trailer Trucks:	0	2.0%	2.3719	0
Double Trailer Trucks	0	2.0%	2.3187	0
Heavy Tractor Trailer Combo Trucks:	0	2.0%	2.9760	0
Average Daily Traffic in Design Lane:	100			

Total Design Life 18-kip ESALs:	116,602
Actual Log (ESALs):	5.067
Trial SN:	2.62
Trial Log (ESALs):	5.096
Pavement Section Design SN:	2.62

	Design Depth Inches	Structural Coefficient	Drainage Coefficient
Asphaltic Concrete:	3.00	0.42	n/a
Asphalt-Treated Base:	0.00	0.25	n/a
Cement-Treated Base:	0.00	0.17	n/a
Crushed Aggregate Base:	4.00	0.14	1.0
Subbase:	8.00	0.10	1.0
Special Aggregate Subgrade:	0.00	0.09	0.9

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

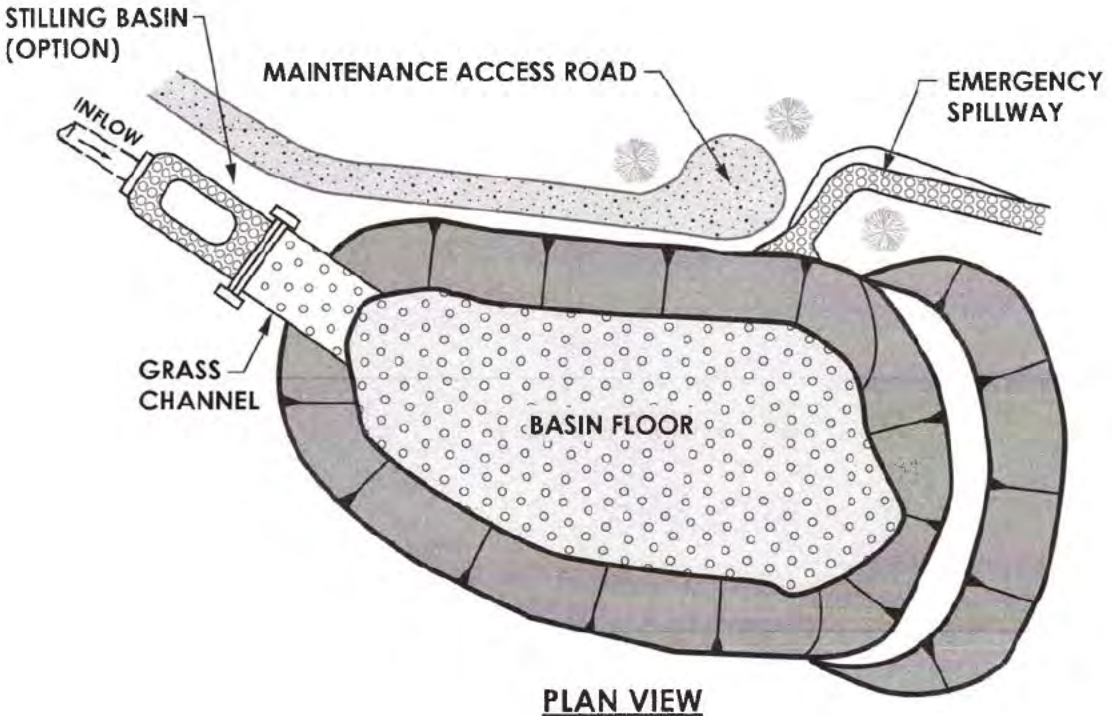
GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

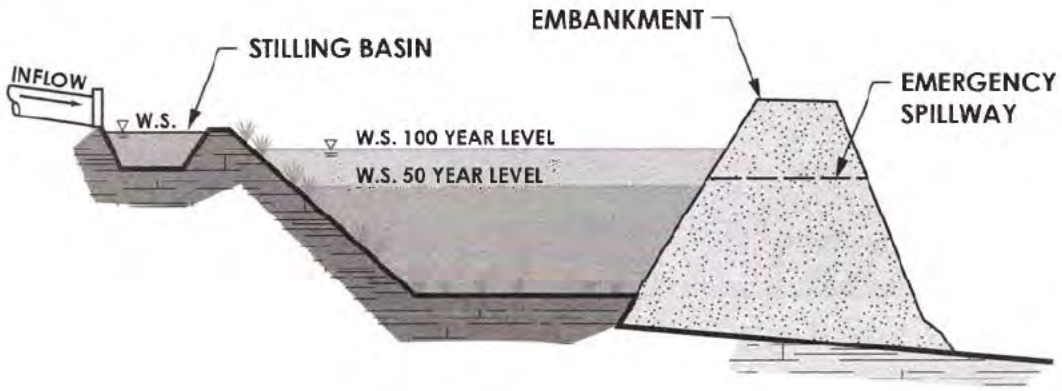
APPENDIX F – STRUCTURAL CONTROL ASSESSMENT TABLES AND BMPS

OM-1 Dry Ponds and Basins (Infiltration and Evaporation)

ARE ANY OF THESE PRESENT?	POTENTIAL CAUSE	RECOMMENDATION
Undesirable vegetation is invading the pond/basin	Nuisance, poisonous, or noxious weeds	Manually remove undesirable vegetation. Seek advice from the University of Idaho Cooperative Extension System (Ada County) or the Idaho Dept. of Agriculture before applying pesticides. Certain pesticides should not be used near waterbodies.
Bare spots or sparse vegetation is evident in the pond	Compaction	Aerate and amend soils, re-seed, and mulch bare areas. Re-contour and re-seed pond to original design specifications.
	Insect infestation	Seek advice from the University of Idaho Cooperative Extension System (Ada County) or the Idaho Dept of Agriculture regarding appropriate methods for controlling insects.
Water flows through holes in dam or berm; holes are present around pond	Rodents	Control rodents and repair dam or berm. Contact the Idaho Department of Fish and Game for information on controlling rodents.
Large trees interfere with maintenance activities	Overgrown trees	Remove trees that interfere with access or maintenance activities. Preserve trees that are not a problem.
Accumulated sediment exceeds 10% of the designed pond depth	Excessive sediment	Clean out sediment to original shape and depth of the pond. Re-seed pond, if necessary, to control erosion.
Dike or berm has settled 4" lower than design elevation	Dike/berm settlement	Repair dike/berm to original design specifications. Re-seed or sod.
Bare soil is visible at top of spillway or outside slope	Inadequate rock layer	Add enough rock to cover up bare soil.
Debris covers at least 25% of the bar screen or bar screen is missing.	Trash rack is plugged or missing	Replace screen, if necessary. Remove trash and debris. Dispose of waste properly.



PLAN VIEW

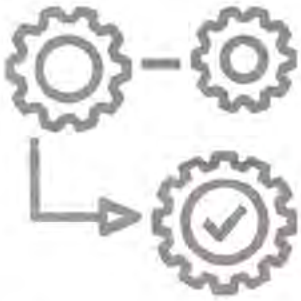


SECTION

Evaporation Pond

OM-10 Pipes and Surface Conveyance

SYSTEM FEATURE	ARE ANY OF THESE PRESENT?	POTENTIAL CAUSE	RECOMMENDATION
Pipes	**Accumulated sediment or trash exceeds 20% of the diameter of the pipe**	Excess accumulation of sediment or trash	Clean out sediment and trash from pipe. Use a high-pressure hose, vacuum suction, or other appropriate cleaning method. Contact the design engineer for information on the appropriate cleaning methods for your type of drainage system.
	Vegetation is impeding water flow	Overgrown vegetation	Clean out sediment and trash from pipe. Use a high-pressure hose, vacuum suction, or other appropriate cleaning method. Contact the design engineer for information on the appropriate cleaning methods for your type of drainage system.
	Pipe is rusted; protective coating is damaged	Corroded pipe	Replace or repair pipe to original design specifications.
	Dent in pipe has reduced the pipe diameter by 20%; water flow is impeded; pipe is broken.	Defective pipe	Replace or repair pipe to original design specifications.
	Water is leaking from pipe	Cracked pipe	Replace or repair pipe to original design specifications.
Ditches	**Accumulated sediment exceeds 20% of the designed ditch depth.**	Excess sediment accumulation	Clean out sediment to original shape and depth of the ditch. Dispose of sediment properly.
	Vegetation reduces water movement through ditch	Overgrown vegetation	Remove any weedy shrubs or saplings that impeded water flow. Preserve grass to control erosion.
	Slope of ditch has areas where erosion at least 2" deep and there is a potential for further erosion	Soil erosion	Check around inlets and outlets for erosion. Eliminate causes of erosion, if possible. If it isn't possible, use erosion and sedimentation control BMPs as listing in the Idaho Catalog of Storm Water Best Management Practices
	Bare soil is visible beneath the rock lining.	Inadequate rock layer	Add enough rock to meet design specifications.



SECTION 1

General Stormwater Pollution Prevention Controls and Practices

PRACTICES APPLICABLE FOR ALL FACILITIES AND BUSINESSES:

- Train employees to protect storm drains and to use good housekeeping techniques, as described in this section.
- Prevent and clean up spills immediately using dry cleanup methods. Do not wash materials into storm drains or gutters.
- Depending on the type and quantity of materials present on the property, maintain spill response kits in all activity areas. For more information contact City of Middleton Public Works Department
- Conduct regular inspections in areas where activities with potential to contribute to pollution are conducted, including material and equipment storage areas.
- Store and use chemicals in accordance with manufacturer instructions.
- Ensure proper disposal of hazardous and nonhazardous waste.

PRACTICES THAT MAY BE APPLICABLE DEPENDING ON SITE CONDITIONS AND ACTIVITIES:

- Conduct regular inspections and self-audits to identify hazardous materials and activities that impact stormwater.
- Mark storm drains with a "Dump No Waste" message to identify stormwater drains and to prevent non-stormwater discharges.
- Look for ways to reduce, reuse, and recycle materials and use non-toxic or the least toxic materials available.
- Locate business activities indoors or in designated areas away from a gutter or storm drain to prevent stormwater from running onto and off the site. Alternatively, cover the activity, use curbing or berms, pave the work surface, and provide secondary containment with drainage to a treatment system before runoff leaves the property.
- Preserve and maintain existing on-site vegetation.

ADDITIONAL CONSIDERATIONS: FACILITIES WITH LARGE VOLUMES OF OIL MAY BE SUBJECT TO SPCC REQUIREMENTS. LARGE VOLUMES OF CHEMICALS MAY REQUIRE EPCRA REPORTING. CHECK WITH **IDAHO DEQ** FOR MORE INFORMATION ABOUT VOLUME/QUANTITY THRESHOLDS.

DISPOSAL ALTERNATIVES:
General Wastes

DISCHARGE/ACTIVITY	DISPOSAL TECHNIQUE
Carpet cleaning discharge	• Dispose into the sanitary sewer. • Refer to **Partners for Clean Water "Stormwater Pollution Prevention: Mobile Business"** fact sheet here: www.partnersforcleanwater.org/media/1069/mobile-business-pollution-prevention-fact-sheet.pdf
Contaminated pumped ground water, infiltration, and foundation drainage	• Treatment may be necessary. A discharge permit is required prior to any disposal to sanitary sewer.
Kitchen grease	• NEVER flush down the drain. • Put in closed container and put in trash. • Small amounts of cooking oil: fill disposal container with cat litter and add oil. Add sufficient cat litter to absorb all the oil. Dispose to trash as solid waste. • For pick-up of large quantities of fat/oil/grease contact a professional recycling/disposal service.
Exhaust hood filter cleaning	• Discharge wash water through a grease interceptor then to sanitary sewer.
Clean-up wastewater from sewer back-up	• Block storm drain, contain, collect and return spilled material to the sanitary sewer and rinse remaining material to collection point and pump to sanitary sewer. No rinse water may flow to storm drain.
Leaking garbage dumpsters	• Collect and contain leaking material. • Repair leak; return dumpster to trash service company for repair.
Wash water from cleaning garbage dumpsters	• Filter wash water through grease interceptor; contact City of Middleton Public Works Department before discharging to sanitary sewer.

SECTION 4

Property Cleaning and Outdoor Maintenance Controls and Practices

LANDSCAPING

PRACTICES APPLICABLE FOR ALL FACILITIES AND BUSINESSES:

- Apply and store pesticides and fertilizers according to the manufacturer's recommendations.
- Store and maintain spill response kits near pesticide storage areas.
- Properly dispose of debris daily and empty packaging/containers daily.
- Properly dispose of chlorinated swimming pool water. Dechlorinated swimming pool water is an authorized non-stormwater discharge and may be discharged to the storm sewer. Ensure that the discharged water is not picking up sediment or other pollutants as it flows to the storm drain.
- Refer to **Partners for Clean Water "Stormwater Pollution Prevention: Commercial Landscaping"** fact sheet here: https://www.partnersforcleanwater.org/media/1070/commercial-landscaping-pollution-prevention-fact-sheet.pdf

PRACTICES THAT MAY BE APPLICABLE DEPENDING ON SITE CONDITIONS AND ACTIVITIES:

- Use integrated pest management practices where appropriate.
- Purchase only the amount of pesticides/fertilizers you need for your site.
- Maintain a neat and orderly work area free of loose trash and trackable material.
- Avoid using the street as a staging area for bulk materials such as sand, top soil, or mulch.

SITE AND FACILITIES MAINTENANCE

PRACTICES APPLICABLE FOR ALL FACILITIES AND BUSINESSES:

- Collect trash and yard debris and dispose of properly as needed.
- Store paints, solvents, and other maintenance materials in a covered area, outside of high traffic areas.
- Install secondary containment where required.
- Inspect and clean the onsite storm drainage system on a regular basis and as needed to ensure proper operation as designed.
- Do not use detergents in street and pavement wash waters.
- Do not use detergents for routine building or structure washdown.

PRACTICES THAT MAY BE APPLICABLE DEPENDING ON SITE CONDITIONS AND ACTIVITIES:

- Sweep work areas frequently to avoid accumulation of material.
- Avoid blowing trash, yard debris, or dust into a street or gutter.
- Establish an operation and maintenance schedule and track maintenance activities. Identify a specific individual to act as the contact person responsible for inspection and maintenance.
- Review the definition of authorized non-stormwater discharges in the definitions section of this manual to evaluate proper disposal and management of discharges other than stormwater.

DISPOSAL ALTERNATIVES: Property Cleaning and Outdoor Maintenance

DISCHARGE/ACTIVITY	DISPOSAL TECHNIQUE
Exterior building and property cleaning (no hazardous materials present)	• Routine property maintenance that includes litter control, frequent sweeping, and ongoing spill containment using dry clean-up methods is recommended. • Sweep paved area prior to wet-cleaning and dispose debris in trash or landscaping. • Wash water with soap of any kind is not allowed into storm drains. Direct small amounts soapy wash water to landscaped areas for infiltration or collect and dispose into the sanitary sewer. • Minimize the amount of water used for cleaning (e.g., high-pressure washing). Small discharges can be directed onto adjacent landscaped areas. • Place filters for debris, sediment, and oil and grease hydrocarbon booms or pads around storm drain inlets or access points if any material of that type is present. There should be no visible sheen on the discharge entering the storm drain. • High-pressure, hot water cleaning (e.g., steam cleaning) discharges to storm drains are subject to all the discharge control requirements listed. • Any stormwater or groundwater discharges to sanitary sewer must have prior approval through the City of Middleton Public Works Department and may be subject to permitting under City's regulations.
Exterior building and property cleaning (hazardous materials in paints)	• Use dry cleaning methods (e.g., sand blasting). • Mop up wash water, reduce volume by evaporation. • Dispose of as hazardous waste. • No wash water or debris to be left in the street and no discharge to storm drains. • If paint contains lead, assistance available from **EPA Lead Program**
Pesticides	• Use up, rinse containers, and use rinse water as product. • Dispose of rinsed containers in trash. • Dispose unused pesticide as hazardous waste.
Garden clippings and tree trimmings	• Compost or take to landfill. • Chip if necessary, before composting or sending to landfill.
Swimming pool, spa, or fountain water	• Avoid using metal-based algicides (copper sulfate).
Acid or other pool, spa, etc., cleaning	• Neutralize
Swimming pool, spa filter backwash	• Reuse for irrigation water. • Dispose on dirt area. • Settle

SECTION 6

Stormwater Facility Operations and Maintenance

STORMWATER FACILITY OPERATION AND MAINTENANCE ISSUES

PRACTICES APPLICABLE FOR ALL FACILITIES AND BUSINESSES:

- Inspect and clean onsite storm drain catch basins and inlets, structural controls such as swales and infiltration basins, and stormwater conveyances on a regular basis (e.g., twice a year) to ensure proper operation as designed and to reduce stormwater pollution.
- Have oil/water separators, catch basin sumps, and structural control forebays cleaned out on a regular basis. Adjust frequency as needed to accommodate changes in site operations.

PRACTICES THAT MAY BE APPLICABLE DEPENDING ON SITE CONDITIONS AND ACTIVITIES:

- Establish an operation and maintenance schedule and track maintenance activities. List the contact person responsible for inspection and maintenance.
- Repair/replace damaged and inoperable stormwater controls and conveyances in a timely manner to maintain the stormwater systems in good working order.

NON-STORMWATER DISCHARGES

PRACTICES APPLICABLE FOR ALL FACILITIES AND BUSINESSES:

- **Eliminate illicit connections to the storm drainage system by inspection, piping schematic review, smoke testing, or dye testing. Contact the City of Middleton Public Works Department or the local sewer district for more information about connecting to and using the sanitary sewer system.**
- Train employees on how to properly identify and dispose of non-stormwater discharges.

PRACTICES THAT MAY BE APPLICABLE DEPENDING ON SITE CONDITIONS AND ACTIVITIES:

- Eliminate or reduce non-stormwater discharges to the stormwater collection system by isolating problem areas or re-plumbing to sanitary sewer lines in accordance with local sanitary sewer requirements.
- Authorized non-stormwater discharges are described in the definitions section of this manual.

APPENDIX G – INSPECTION AND MAINTENANCE FORM

Stormwater System and Facility Inspection Report

General Information			
Facility Name			
Date of Inspection		**Time**	
Inspector's Name(s)			
Inspector's Contact Information			
Type of Inspection: ❑ Routine ❑ During storm event ❑ Post-storm event ❑ Non-Routine			
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: Temperature:			
Has there been any runoff observed since the last inspection? ❑Yes ❑No **If yes, describe:**			
Is there any runoff occurring at the time of inspection? ❑Yes ❑No **If yes, describe:**			

Site-specific controls

- *Recommendation: Number the structural and non-structural stormwater controls identified in your operation and maintenance plan on your site map and list them below (add as many controls as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required stormwater controls at your facility.*

	Structural or nonstructural stormwater control	Control installed/ implemented?	Maintenance required on the control?	Corrective action needed and notes
1		❑Yes ❑No	❑Yes ❑No	
2		❑Yes ❑No	❑Yes ❑No	
3		❑Yes ❑No	❑Yes ❑No	
4		❑Yes ❑No	❑Yes ❑No	
5		❑Yes ❑No	❑Yes ❑No	
6		❑Yes ❑No	❑Yes ❑No	
7		❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	
10		❑Yes ❑No	❑Yes ❑No	
11		❑Yes ❑No	❑Yes ❑No	
12		❑Yes ❑No	❑Yes ❑No	
13		❑Yes ❑No	❑Yes ❑No	
14		❑Yes ❑No	❑Yes ❑No	
15		❑Yes ❑No	❑Yes ❑No	
16		❑Yes ❑No	❑Yes ❑No	
17		❑Yes ❑No	❑Yes ❑No	
18		❑Yes ❑No	❑Yes ❑No	
19		❑Yes ❑No	❑Yes ❑No	
20		❑Yes ❑No	❑Yes ❑No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections.

	Control/activity	Implemented?	Maintenance required?	Corrective action needed and notes
1	Are any discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No	
2	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
3	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No	
4	Are any washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	
5	Are any vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No	
6	Are any materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	
7	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	
10		❑Yes ❑No	❑Yes ❑No	

Non-Compliance/Pollution Reports

Describe any incidents of non-compliance not described above or any incidence of pollution:

Additional Control Measures Needed

Describe any additional control measures needed to comply with the permit requirements:

Notes

Use this space for any additional notes or observations from the inspection:

Inspector name: _____

Signature: _____ **Date:** _____

EXHIBIT E

[Exhibit commences on following page.]

Outlook

RE: Shoemaker Donnelly

From Kendra Conder <Kendra.Conder@itd.idaho.gov>
Date Mon 2/9/2026 9:33 AM
To Steve Thiessen <steve@hatchda.com>

Good morning, Steve,

We are in support of the proposed intersection realignment at Old State and SH-55. We would also work with you on an emergency access further north, but it will need to be gated for EMS only.

Thanks again for your patience. I've been able to catch up over the last few weeks so response times should be faster now.

Kendra Conder
District 3 | Development Services Coordinator
Idaho Transportation Department
Office: 208-334-8377
Cell: 208-972-3190

From: Steve Thiessen <steve@hatchda.com>
Sent: Thursday, January 22, 2026 8:20 AM
To: Kendra Conder <Kendra.Conder@itd.idaho.gov>
Subject: Re: Shoemaker Donnelly

Good morning Kendra,

Thank you for getting back to me. Please the response to questions below:

- It looks like there's a residential driveway about 750' north of Old State road. Is that staying? If so, have you thought about shared access?
  We will reach out, but I do not believe this neighbor is very supportive of the project. We will need some sort of access on the north end of the parcel for fire access.

- Is the site in Donnelly's area of impact or within the county? Need to know for spacing requirements.
  Yes.

- I want to make sure I understand the proposed access at Old State. When I look on Google, there's an asphalt piece just south of the stop sign that connects to SH-55. Is that where you plan on connecting? Or is it where Old State connects to SH-55?
  A few years ago, we had some initial discussions with Wendy Howell in regards to that connection. I have attached a concept that came from those discussions. The concept would eliminate the "off ramp".

- Is Eagle lane a private road?
  I will reach out to Vally County roads to determine the classification.

Please let me know if you have any additional questions or comments. We look forward to working with you on this project.

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture
200 w. 36th Street, Boise, ID 83714
C: 208-598-5032
O: 208-475-3204 ex 5
D: 208-370-5992
E: steve@hatchda.com

From: Kendra Conder <Kendra.Conder@itd.idaho.gov>
Sent: Wednesday, January 21, 2026 3:57 PM
To: Steve Thiessen <steve@hatchda.com>
Subject: RE: Shoemaker Donnelly

Hi Steve,

Thanks again for your patience! I've got some initial questions for you –

- It looks like there's a residential driveway about 750' north of Old State road. Is that staying? If so, have you thought about shared access?
- Is the site in Donnelly's area of impact or within the county? Need to know for spacing requirements.
- I want to make sure I understand the proposed access at Old State. When I look on Google, there's an asphalt piece just south of the stop sign that connects to SH-55. Is that where you plan on connecting? Or is it where Old State connects to SH-55?
- Is Eagle lane a private road?

As an FYI, I'm the only development services coordinator for all of SW Idaho right now, so responses via email are slower than I'd like. If you need any answers sooner rather than later, don't hesitate to give me a call.

Kendra Conder
District 3 | Development Services Coordinator
Idaho Transportation Department

Office: 208-334-8377
Cell: 208-972-3190

From: Steve Thiessen <steve@hatchda.com>
Sent: Tuesday, January 13, 2026 2:21 PM
To: Kendra Conder <Kendra.Conder@itd.idaho.gov>
Subject: Re: Shoemaker Donnelly

Hi Kendra,

That sounds good. We are moving forward with our storage project on the corner of Old State and Hwy 55. As part of our conditions of approval, we need to work with ITD and the Valley County Road Department to work out off-site road improvements. One of the big items was a rework of the intersection of Hwy 55 and Old State. I have attached the traffic impact statement which includes a concept for the intersection. We would also be requesting an access approximately 700' north of the intersection. Please review the attached and let me know your initial thoughts on this concept. Please let know if you have any questions or if you need additional information.

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture
200 w. 36th Street, Boise, ID 83714
C: 208-598-5032
O: 208-475-3204 ex 5
D: 208-370-5992
E: steve@hatchda.com

From: Kendra Conder <Kendra.Conder@itd.idaho.gov>
Sent: Tuesday, January 13, 2026 1:02 PM
To: Steve Thiessen <steve@hatchda.com>
Subject: RE: Shoemaker Donnelly

Hi Steve,

If you need someone on our team, then it'll be me. Niki took a job with Caldwell so it's just me at the moment.

Let me know if you need a contact with a different group!

Kendra Conder
District 3 | Development Services Coordinator
Idaho Transportation Department
Office: 208-334-8377
Cell: 208-972-3190

From: Steve Thiessen <steve@hatchda.com>
Sent: Tuesday, January 13, 2026 8:15 AM
To: Kendra Conder <Kendra.Conder@itd.idaho.gov>
Subject: Shoemaker Donnelly

Good morning Kendra,

Who is the ITD planner for Donnelly?

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 w. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

EXHIBIT F

[*Exhibit commences on following page.*]

Outlook

Re: Shoemaker Donnelly

From Steve Thiessen <steve@hatchda.com>
Date Mon 4/27/2026 1:50 PM
To Kerstin Dettrich <KDettrich@valleycountyid.gov>
Cc Jeff Mcfadden <jmcfadden@valleycountyid.gov>; Cynda Herrick <cherrick@valleycountyid.gov>

1 attachment (36 KB)
CUP 22-34_Shoemaker Storage_Road Improvement Agreement_Draft_03-30-26 (3).docx;

Good afternoon Kirsten,

Ownership would prefer option 1 in the attached agreement. Please let me know if you need anything else from us.

Thank you,
Steve

Steve Thiessen, AIT
Entitlement Director

Hatch Design Architecture
200 w. 36th Street, Boise, ID 83714
C: 208-598-5032
O: 208-475-3204 ex 5
D: 208-370-5992
E: steve@hatchda.com

From: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Sent: Monday, April 13, 2026 9:26 AM
To: Steve Thiessen <steve@hatchda.com>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>; Cynda Herrick <cherrick@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Steve: See attached verbiage that would fold into the planning department development agreement, pending negotiation with the board of county commissioners. The format of this with two options is the preferred method of the county. If applicant wishes to perform work in ROW, a construction permit in ROW application will need to be submitted for approval and requirements listed in application met.

Please let us know what questions you have.

Thank you,

Kerstin Dettrich
Road & Bridge Director
Valley County Idaho
Office: (208) 382-7195
Cell: (208) 315-0635
Email: kdettrich@valleycountyid.gov

From: Steve Thiessen <steve@hatchda.com>
Sent: Monday, April 13, 2026 7:28 AM
To: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Good morning Kerstin,

Just following up on the Shoemaker Donnelly project. Have you received the review form Parametrix. Do you have a contact over there?

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 w. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

From: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Sent: Thursday, March 12, 2026 12:22 PM
To: Steve Thiessen <steve@hatchda.com>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Apologies - I do not have this letter back from Parametrix yet but should very soon and then we can review.

Kerstin Dettrich
Road & Bridge Director
Valley County Idaho
Office: (208) 382-7195
Cell: (208) 315-0635
Email: kdettrich@valleycountyid.gov

From: Steve Thiessen <steve@hatchda.com>
Sent: Thursday, March 12, 2026 11:23 AM
To: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Good morning Kerstin,

Jeff would like to schedule a meeting to discuss the Shoemaker Donnelly project. Would you have some time this Wednesday?

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 W. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

From: Steve Thiessen <steve@hatchda.com>
Sent: Monday, February 23, 2026 7:46 AM
To: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Good morning Kirsten,

I am following up on the Shoemaker Donnelly project. Have you had a chance to review the project?

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 w. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

From: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Sent: Thursday, January 22, 2026 9:29 AM
To: Steve Thiessen <steve@hatchda.com>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Steve,
This is on our list to discuss today in an internal meeting for development reviews. I will get back to you.

Kerstin Dettrich
Road & Bridge Director
Valley County Idaho
Office: (208) 382-7195
Cell: (208) 315-0635
Email: kdettrich@valleycountyid.gov

From: Steve Thiessen <steve@hatchda.com>
Sent: Thursday, January 22, 2026 8:25 AM
To: Kerstin Dettrich <KDettrich@valleycountyid.gov>
Cc: Jeff Mcfadden <jmcfadden@valleycountyid.gov>
Subject: Re: Shoemaker Donnelly

Good morning Kerstin,

I am following up on a previous email. Were you able review the site plan? Also, is Eagle Lane a private street?

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 w. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

From: Steve Thiessen
Sent: Tuesday, January 13, 2026 9:30 AM
To: kdettrich@valleycountyid.gov <kdettrich@valleycountyid.gov>
Subject: Shoemaker Donnelly

Good morning Kirsten,

Cynda asked me to reach out. As a condition of our CUP approval (22-34), we are required to discuss off-site road conditions. I have attached the proposed site plan and traffic impact statement. Please review and let me know if you have any questions or comments.

Thank you,
Steve

Steve Thiessen, AIT

Hatch Design Architecture

200 w. 36th Street, Boise, ID 83714

C: 208-598-5032

O: 208-475-3204 ex 5

D: 208-370-5992

E: steve@hatchda.com

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EXHIBIT G

[*Exhibit commences on following page.*]

I. Off-Site Road Improvement Agreement

A. Valley County requires no additional right of way along Eagle Lane or Old State Road. Accordingly, Shoemaker Properties LLC shall not dedicate right of way to Valley County and shall receive no right-of-way credit under this Development Agreement.

B. The Valley County Public Works Engineer has evaluated the off-site roadway impacts of CUP 22-34 consistent with Resolution 2025-06 Development Agreement Policy, adopted in February 2025, Resolution 2025-12 Development Agreement - Cost Estimates, and the applicable Development Agreement Cost Estimates [Proportionate Share Guidelines]. Those impacts are summarized in a letter dated December 17, 2024. After reviewing the traffic the project is expected to generate, the current and future capacity of nearby roads, and the applicable Development Agreement Cost Estimates [Proportionate Share Guidelines], Valley County determined the primary off-site impact will be to Old State Road due to increased traffic accessing Shoemaker Donnelly Storage. Shoemaker Properties LLC agrees to mitigate the off-site impacts of CUP 22-34 by providing proportional participation in off-site public roadway facilities necessary to accommodate projected traffic pursuant to Idaho Code § 67-6512(d) in the amount of fifteen thousand six hundred eighty-two dollars ($15,682), the sufficiency of which is hereby acknowledged.

Shoemaker Properties LLC shall satisfy its proportional roadway participation obligation through one of the two options below. The amount stated above is a planning-level estimate subject to Development Agreement negotiation and Board approval and may be satisfied by cash payment or approved in-kind work. The selected option, initialed by the representative for Shoemaker Properties LLC, becomes binding upon recordation of this Development Agreement:

(1) Option 1: Pay a cash contribution to Valley County representing the project's proportionate share of the off-site public roadway improvements required to mitigate the impacts of CUP 22-34. The proportional roadway participation amount has been determined to be fifteen thousand six hundred eighty-two dollars ($15,682). Payment is due on or before December 31, 2026. Within thirty (30) days of recordation of this Development Agreement, Shoemaker Properties LLC shall provide financial assurances sufficient to ensure that funds are available to successfully complete the mitigation project. The form and sufficiency of the financial assurances offered by Shoemaker Properties LLC must be approved by the Valley County Planning and Zoning Director. All cash contribution amounts paid to Valley County shall be used by Valley County to improve Old State Road from XXXX to XXXX. Funds shall be expended by Valley County within two (2) years from the date of payment by Shoemaker Properties LLC.

Option #1 election: _____

Shoemaker Properties LLC

(2) Option 2: In lieu of the cash contribution described in Option 1 above, Shoemaker Properties LLC shall provide in-kind services for improvements to Old State Road as

detailed below. The parties agree that the value of the in-kind services is equivalent to the cash contribution calculated herein and, upon successful completion of the mitigation project described in Option 2, Shoemaker Properties LLC shall have satisfied all off-site roadway participation obligations required by this Development Agreement. All in-kind construction shall be successfully completed by passing a final inspection by the Valley County Public Works Engineer by December 31, 2026. All risks associated with increased construction and labor costs are assumed by Shoemaker Properties LLC, and Shoemaker Properties LLC hereby waives any right to reimbursement from Valley County for any and all costs that exceed the cash contribution described in Option 1.

- Specific improvements TBD

- Shoemaker Properties LLC shall serve as the general contractor and be financially and legally responsible for all construction of the Old State Road improvements. Shoemaker Properties LLC shall secure all necessary permits and have adequate general liability insurance in place prior to commencement of construction on Old State Road. Shoemaker Properties LLC is responsible for signage and traffic control during construction.

- Shoemaker Properties LLC shall implement measures to control and reduce dust generation and dispersion during construction. Dust abatement methods must comply with all applicable environmental standards and regulations.

- All phases of construction are subject to inspection by Valley County and Shoemaker Properties LLC hereby agrees to cooperate with all inspections and work shall conform to all county standards as required by Valley County.

Option #2 election: _____

Shoemaker Properties LLC

EXHIBIT H

[*Exhibit commences on following page.*]

APPLICATION - Subsurface Sewage Disposal

Public Health
Idaho Public Health Districts

Central District Health
Valley County
703 1st Street
Mcall, ID
(208) 634-7194

Permit Fee: 878 ~~00~~ Date: 12/12/25
Receipt #: 78630 File #: 168783
For Office Use Only

Property Address (If Available):
Street: 13051 Old State Rd. Acres: 27
City: Donnelly Zip: 83615 County Parcel #: RP16N03E157408
Property is Located: ☐ Inside City – City Name: _____ ☒ Inside County – County Name: Valley

Legal Description: E 1/2 ¼ SE ¼	Section: 15	Township: 16 North	Range: 3 East
Subdivision:		Lot:	Block:

Directions (nearest crossroad):
Lying North of Eagle Ln. & West of Old State Road, as shown on the official plat of Eagle Ridge Sub.

Owner Name: Shoemaker Properties Email: Kgills@shoeprop.com
Mailing Address: PO Box 759 Phone #: 208-972-4309
City: Eagle State: ID Zip Code: 83616

Applicant Name: Kyle Gills Email: Kgills@shoeprop.com
Mailing Address: PO Box 759 Phone #: 208-972-4309
City: Eagle State: ID Zip Code: 83616
☐ Same as owner ☐ Buyer ☐ Contractor ☐ Installer ☐ Realtor

Type of Septic Installation: ☒ New ☐ Enlargement ☐ Replacement ☐ Tank Only ☐ Vault Privy

Proposed Usage: ☐ Residential ☐ Accessory Dwelling Unit ☒ Other with plumbing (barn, shop, etc.) ☒ Non-Residential
☐ Central (**more** than two dwellings or **more** than two buildings under separate ownership) ☐ Large Soil Absorption (>2,500 gal/day)

Is there an existing structure on this parcel? Yes OR (No) Type of Structure: _____ Year Built: _____

Number of Bedrooms: (Residence) _____ and/or (Accessory Dwelling Unit) _____ Number of Bathrooms: 2
Number of People: N/A Square Footage: _____ RV Connection: (Yes) OR No Dump Only (1)

Foundation Type: ☐ Basement ☐ Crawl Space ☐ Split Level ☒ Slab

City sewer or central wastewater collection system accessible to property? Yes OR (No)

Water Supply: ☒ Private Well ☐ Public Water System ☐ Shared Well ☐ Other: _____

Signature: [signature] Date: 11-25-25

By my signature above, I certify that all answers and statements on this application are true and complete to the best of my knowledge. I understand that should evaluation disclose untruthful or misleading answers, my application may be rejected, or my permit canceled. I accept the responsibility to notify the Health District of any changes to the above information if performed prior to completion of the permitted system. I hereby authorize the Health District to have access to this property for the purpose of conducting a site-evaluation. I understand that this application and the subsequent permit is non-transferable between property owners and/or project sites. I under- stand that the application will expire two (2) years from date of purchase. The permit/application may be renewed if the renewal is applied for on or before the expiration date.

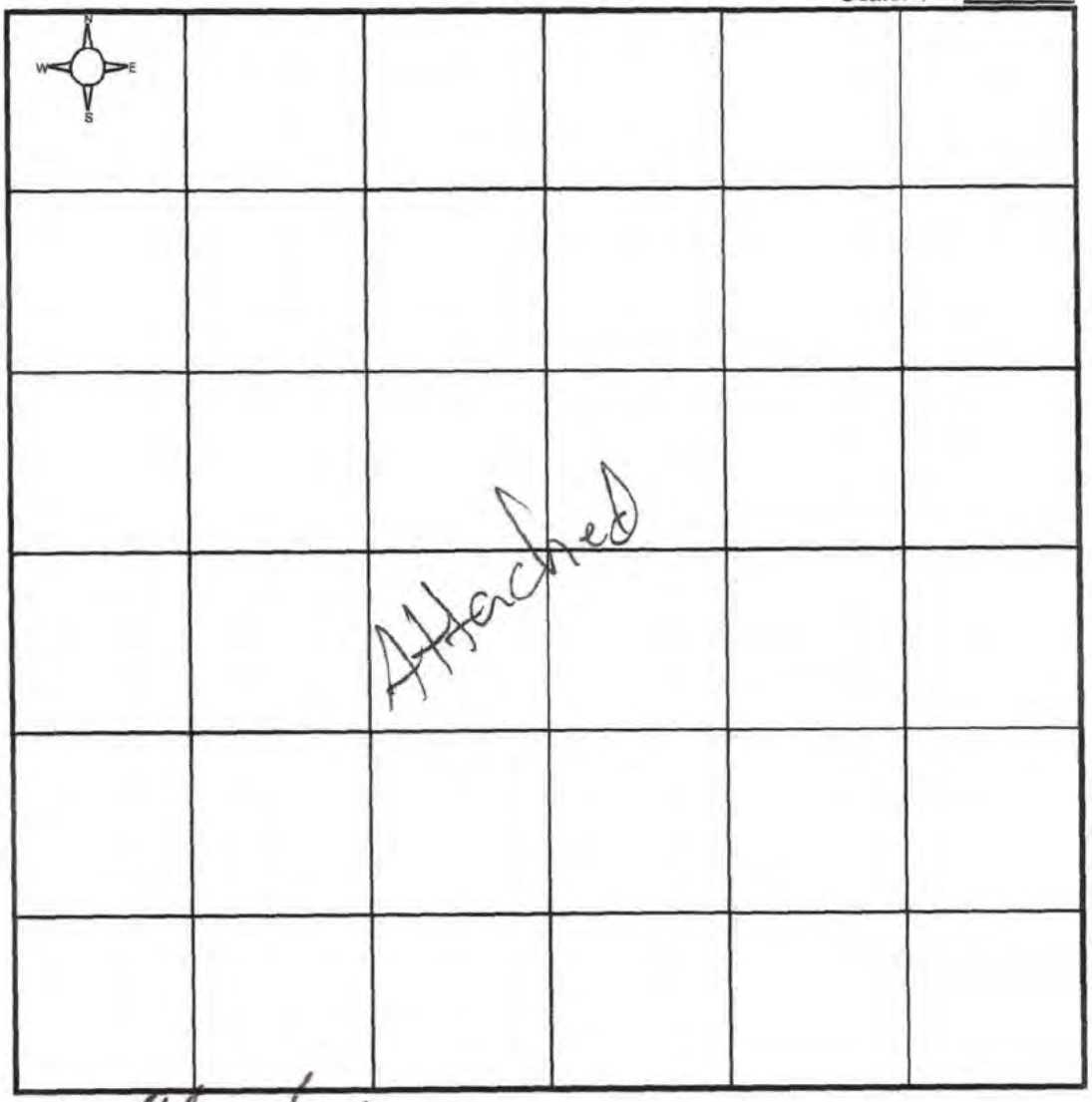
Revision Date: 7/25 bk

Public Health

Idaho Public Health Districts

Please draw an aerial view of the property showing the outline of buildings, property lines, well location(s), water lines, location of septic tank and drainfields, location of drainfield replacement area, ditches and streams, easements and right of ways, driveway and parking area, cut banks, and location of street or road. Indicate dimensions and separation distances of each from septic tank and drainfield.

Plot Plan Scale: 1" = _____'



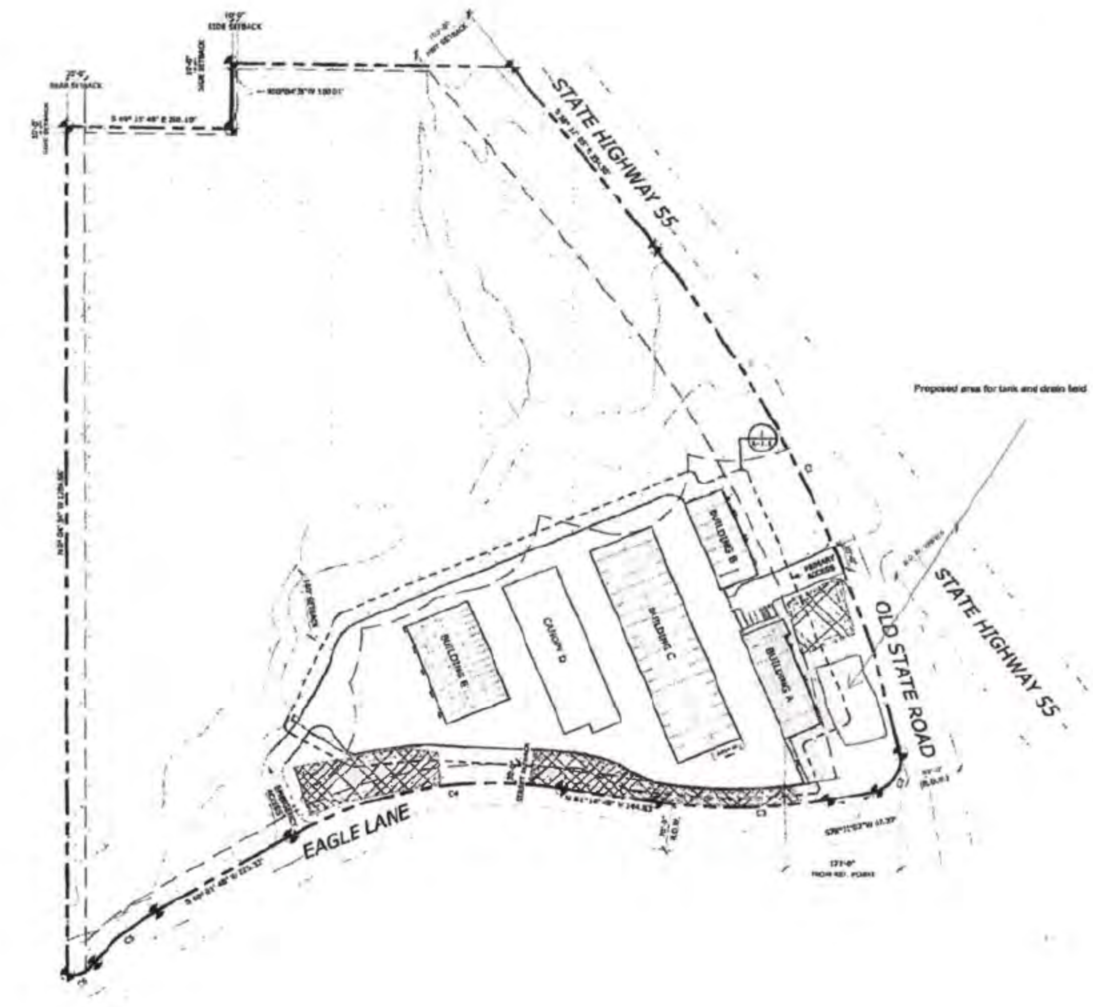
Signature: Tyler Hill Date: 12-11-25

By my signature above, I certify that all answers and statements on this application are true and complete to the best of my knowledge. I understand that should evaluation disclose untruthful or misleading answers, my application may be rejected or my permit canceled. I understnd that any deviation from the plans, conditions, and specifications, is prohibited unless it is approved in advance by the Director or his designee. I hearby authorize the Health District to have access to this property for the purpose of conducting a site-evaluation.

(Official Use Only)

Plot Plan Approval Date:_____ EHS Name:_____ EHS #:_____

Revision Date: 10/2010 NRU



SITE PLAN

SITE RECAP

ZONING:
MULTIPLE USE

TOTAL PROJECT SITE:
RP16N03E157408 26.957 acres 1,175,538 SF

SETBACKS:
FRONT (HWY 55): 100'-0"
REAR: 30'-0"
SIDE: 10'-0"
STREET (EAGLE LN): 30'-0"

PARKING:
REQUIRED: OFFICE- 1 SPACE PER 500 SF
1665 SF / 500 SF = 3 SPACES
HC ACCESSIBLE - 1 SPACE

PROVIDED:		
	HC ACCESSIBLE	1 OF 1 SPACES
	STANDARD	3 OF 3 SPACES
	TOTAL	4 OF 4 SPACES

BUILDING AREA RECAP

BUILDING A	10,205 SF
BUILDING B	8,400 SF
BUILDING C	34,600 SF
BUILDING E	16,130 SF
CANOPY D	21,075 SF
TOTAL	90,510 SF

CURVE TABLE

MARK	BEARING	CHORD
C1	S 29° 14' 38" E	841.79'
C2	S 33° 20' 36" W	71.83'
C3	S 89° 08' 07" W	255.63'
C4	S 79° 23' 38" W	421.04'
C5	S 49° 21' 31" W	124.07'
C6	S 73° 39' 17" W	39.05'

SYMBOL LEGEND

- LANDSCAPING SURFACE, SEE LANDSCAPE DRAWINGS
- APPROXIMATE STREAM AND WETLAND AREA LOCATION
- STORMWATER BASIN, SEE CIVIL DRAWINGS
- SNOW STORAGE AREA, SEE CIVIL DRAWINGS
- PROPERTY BOUNDARY LINE
- PROPERTY SETBACK LINE
- ROAD/ACCESS LINE

75% PROGRESS SET NOT FOR CONSTRUCTION

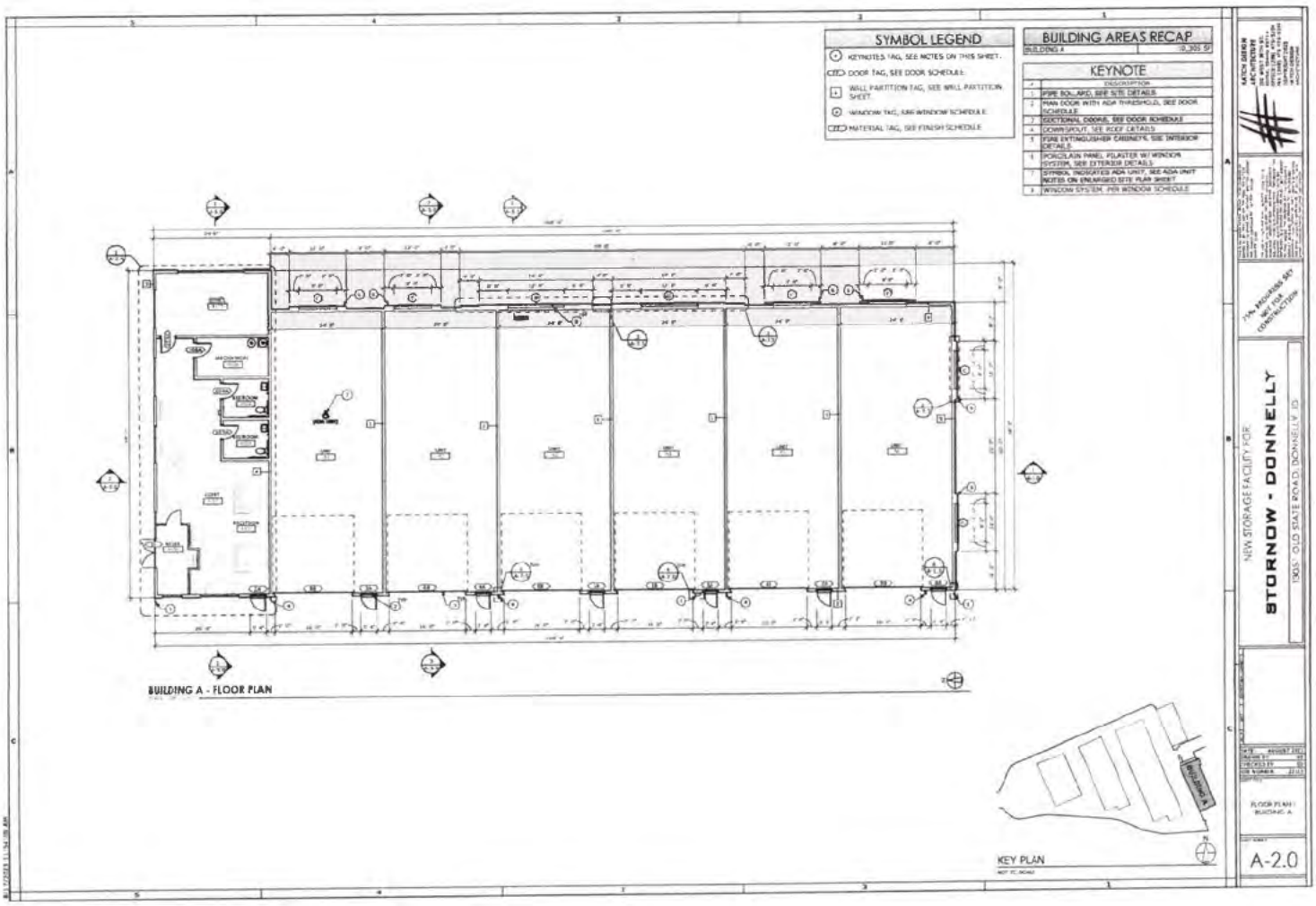
NEW STORAGE FACILITY FOR:
STORNOW • DONNELLY
13051 OLD STATE ROAD, DONNELLY, ID

SITE PLAN

A-1.0

Attachment, Plot Map

Attachment
- Floor Plans
Building A



Received 1-8-26

Parcel Approval for Central District Health

Information Sheet

Return form to:
Valley County Planning & Zoning
PO Box 1350, Cascade, ID 83611
Phone: 208-382-7115 Fax: 208-382-7119
Email: cherrick@co.valley.id.us

This form does not apply to property located within the boundaries of the City of McCall, the City of McCall Impact Area, the City of Donnelly, or the City of Cascade.

Parcel Number RP16N03E157408 Size of Property 26.970 Sq. Ft or Acres
Subdivision Name No Subdivision Lot No. _____ Block No. _____
Physical Address of Parcel 13051 Old State Road Donnelly, ID 83615
Original Date of Parcel _____ Document Referenced: _____

Contact Person Julie Perkins Phone # [redacted]
Name of Owner Shoemaker Properties Phone # 208-972-4309
Mailing Address PO Box 759
City, State, Zip Code Eagle, ID 83616

Name of Applicant (if Different) _____ Phone # _____
Mailing Address _____
City, State, Zip Code _____

What improvements or structures currently exist on the property?
None Number of bedrooms? 0

What improvements or structures are proposed on the property?
Office Building- 2 Bathrooms, 1 RV Connection Number of bedrooms? 0

Is there a septic system already located on the property? ☐ YES ☒ NO
This application is for a: ☒ new system ☐ replacement system ☐ second system ☐ privy
Of the above improvements, which will be served by the proposed septic system?
Office Building- 2 Bathrooms, 1 RV Connection

****

To Be Completed by P&Z Department: Located in floodplain? ☐ YES ☐ NO Panel # _____

☒ Planning & Zoning does **NOT** authorize approval of a septic tank permit for the following reasons: They have not complied with conditions of approval on CUP w/ Development Agreement

☐ ADU _____ ☐ C.U.P. _____

✓ Planning & Zoning approves this parcel for a septic tank permit.

Signed: Valley County Planning & Zoning Staff — Dated 1/6/2026

****

The Administrator may, in writing, suspend or revoke this approval if it is found that the parcel does not meet local, state, or federal regulation, code, or ordinance. Approval is for the subject parcel and proposed land use only. A division of the parcel or a change in land use may void this approval. The proposed land use many also be subject to provisions of restrictive covenants, the Valley County Building Ordinances, the Valley County Land Use & Development Ordinance, or other regulations, codes, or ordinances.

Revised 11/7/2019

Approved so long as they don't install before D.A. 1/7/2026

From: Kyle Gills <kgills@shoeprop.com>
Sent: Thursday, December 11, 2025 5:09 PM
To: EH Apps <EHApps@cdh.idaho.gov>
Cc: Steve Lester <slester@shoeprop.com>
Subject: Valley County Subsurface Sewage App

Hello,

Please find the attached Application for a property we have located in Valley County. Only building A in the site plan will have a small office area with restrooms. If you need additional information, please do not hesitate.

Thank you,

Kyle Gills
Project Coordinator | Shoemaker Properties
(208) 972-4309

PROGRAM ACTIVITY TIME LOG SHEET

Public Health
Prevent. Promote. Protect.
Idaho Public Health Districts

Central District Health
707 N. Armstrong Place
Boise, ID 83704
(208) 327-7499

File # 168783

Owner's Name: Shoemaker Properties
Property Address: 13051 Old State Road
Donnelly, ID 83615

Phone # 208-972-4309

Legal Description	1/4	1/4	Section: 15	Township: 16N	Range: 03E
Subdivision: 0 No Subdivision			Lot:	Block:	Size(acres) 26.97

ACT	EHS	DATE	TT	IT	Notes
20	128	12/12/25	-	30	App. research, submitted P&Z request and emailed applicant for payment & floor plans. Lawful Presence Verified.
20	128	12/17/25	-	10	Received floor plans & left message to collect payment (See attached email regarding building[A] plumbing.)
20	128	01/6/26	-	10	Collected payment, re-submitted P&Z approval request.
20	128	01/06/26	-	5	Received Denial from P&Z. Updated file. Discussed with Brandon Harris. The applicant will need to obtain a CUP from Valley County before we can move forward on this application. Left message for applicant.
20	128	01/08/26	-	10	Received P&Z approval with conditions.*See form

LD004WD Revision Date: 12/10/2019 EMC

PROGRAM ACTIVITY TIME LOG SHEET

Public Health
Prevent. Promote. Protect.
Idaho Public Health Districts

Central District Health
707 N. Armstrong Place
Boise, ID 83704
(208) 327-7499

File # 168783

Owner's Name: Shoemaker Properties
Phone # 208-972-4309
Property Address: 13051 Old State Road
Donnelly, ID 83615

Legal Description	1/4	1/4	Section: 15	Township: 16N	Range: 03E
Subdivision: 0 No Subdivision			Lot:	Block:	Size(acres) 26.97

ACT	EHS	DATE	TT	IT	NOTES

EXHIBIT I

[*Exhibit commences on following page.*]

From: Brandon Harris <BHarris@cdh.idaho.gov>
Sent: Thursday, February 26, 2026 11:27 AM
To: Kyle Gills <kgills@shoeprop.com>
Cc: Steve Lester <slester@shoeprop.com>
Subject: RE: File#168783 - Septic App 13051 Old State Rd. Donnelly

Hello Kyle,

Snow cover in that area, should be at or less than 1ft and melting, I am unable to be onsite unless there is less than 6 inches of snow. The ground water monitoring needs to start as soon as possible due to the minimal amount of precipitation we have received this year. We still have not received enough precipitation to cross the 75% of average we need to accept ground water data for 2026. I must still recommend doing the ground water monitoring, but it may not be accepted if we don't get above the 75% average and would then need to be re-monitored in 2027.

My recommendation would for you to have the monitoring wells installed as soon as possible and if the ground water data is good and we can accept it then we can dig a soil classification test hole at that time.
The monitoring season has already started so the new monitoring wells will need to be placed by next week.

Best,
Brandon Harris

EXHIBIT J

[*Exhibit commences on following page.*]

Your Safety • Your Mobility
Your Economic Opportunity

IDAHO TRANSPORTATION DEPARTMENT
P.O. Box 8028 • Boise, ID 83707-2028
(208) 334-8300 • itd.idaho.gov

June 6, 2024

Jeff Hatch, AIA Leed AP
Hatch Design Architecture
200 W 36th Street
Boise, Idaho 83714

Re: Shoemaker Self-Storage Facility Traffic Impact Study (TIS) Revision Request

Dear Mr. Hatch,

Idaho Transportation Department (ITD) is currently in the process of completing the review of the Shoemaker Self-Storage Facility Traffic Impact Study (TIS). We are unable to complete our review at this time due to the following outstanding item which is itemized below.

1. Traffic Counts/Turn Lane Warrants
    a. Due to Donnelly being a peak weekend travel city, ITD requests the study for Turn Lane Warrants and Traffic Counts during weekends versus weekdays (Friday – Sunday).

ITD reserves the right to provide a TIS Staff Report until the above itemized comment has been addressed and corrected. Once we are in receipt of the revised TIS, ITD will prioritize the review in order to expedite a finalized response.

Maintaining safety and mobility for Idaho's motorists is of utmost importance to ITD. We appreciate your coordination and consideration of the safe and efficient travel for the residents of the Treasure Valley. If you have any questions, please contact Development Services Coordinator Niki Benyakhlef at Niki.Benyakhlef@itd.idaho.gov or 208-334-8337.

Sincerely,

Niki Benyakhlef

D3 Development Services Coordinator
Idaho Transportation Department
8150 W Chinden Blvd
Boise, ID 83707

EXHIBIT K

[*Exhibit commences on following page.*]

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

9575 West Higgins Road, Suite 400 | Rosemont, Illinois 60018
p: 847-518-9990 | f: 847-518-9987

MEMORANDUM TO: Jeff Hatch, AIA Leed AP
Hatch Design Architecture

FROM: Brendan S. May, PE, PTOE
Senior Consultant

Luay R. Aboona, PE, PTOE
Principal

DATE: July 26, 2024

SUBJECT: Traffic Impact Statement
Self-Storage Facility
Donnelly, Idaho

This memorandum summarizes the findings of a traffic impact evaluation prepared for the proposed self-storage facility to be located in the northwest quadrant of the intersection of Eagle Lane with State Highway 55/Old State Road in Donnelly, Idaho. As proposed, the self-storage facility will provide approximately 90,348 square feet of building space. Access to the facility will be provided off State Highway 55 and emergency access will be provided off Eagle Lane. As part of the proposed facility, the intersection of State Highway 55 with Old State Road/the proposed access drive will be reconfigured to provide two 90-degree intersections.

The purpose of this memorandum was to document the existing roadway conditions, estimate the traffic projected to be generated by the self-storage facility, provide a generally assessment of the impact the traffic will have on the adjacent roadway system, and to review the proposed access configuration.

Existing Roadway Characteristics

State Highway 55 is generally a north-south other principal arterial roadway that in the vicinity of the site provides one travel lane in each direction. State Highway 55 operates under free flow conditions at its intersection with Old State Road. North of Old State Road, State Highway 55 carries an annual average daily traffic (AADT) volume of 6,000 vehicles (ITD 2021) and has a posted speed limit of 45 miles per hour. South of Old State Road, State Highway 55 carries an annual average daily traffic volume of 4,900 vehicles (ITD 2021) and has as a posted speed limit of 65 miles per hour. State Highway 55 is under the jurisdiction of the Idaho Transportation Department (ITD).

Old State Road is a north-south major collector roadway that in the vicinity of the site provides one travel lane in each direction. Old State Road is under stop sign control at its intersection with State Highway 55. It should be noted that the intersection of State Highway 55 with Old State Road occurs at an acute angle which creates sight distance difficulties for vehicles making a northbound left-turn movements from Old State Road onto State Highway 55.

Eagle Lane is generally an east-west local roadway that extends from Old State Road approximately 2,500 feet west to its terminus. Eagle Lane serves several residential homes.

Estimated Vehicle Trip Generation

The volume of traffic estimated to be generated by the proposed self-storage facility was based on information published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. **Table 1** summarizes the estimated vehicle trip generation. As can be seen from Table 1, the proposed facility it supposed to generate a total of 132 (66 inbound and 66 outbound) trips on a typical weekday. Furthermore, the facility is only projected to generate eight total trips during the weekday morning peak hour, fourteen total trips during the weekday evening peak hour, and fifteen total trips during the Saturday midday peak hour. This results in one additional vehicle every eight, four, and four minutes, respectively, during the peak hours.

Table 1
ESTIMATED SITE GENERATED TRAFFIC VOLUMES

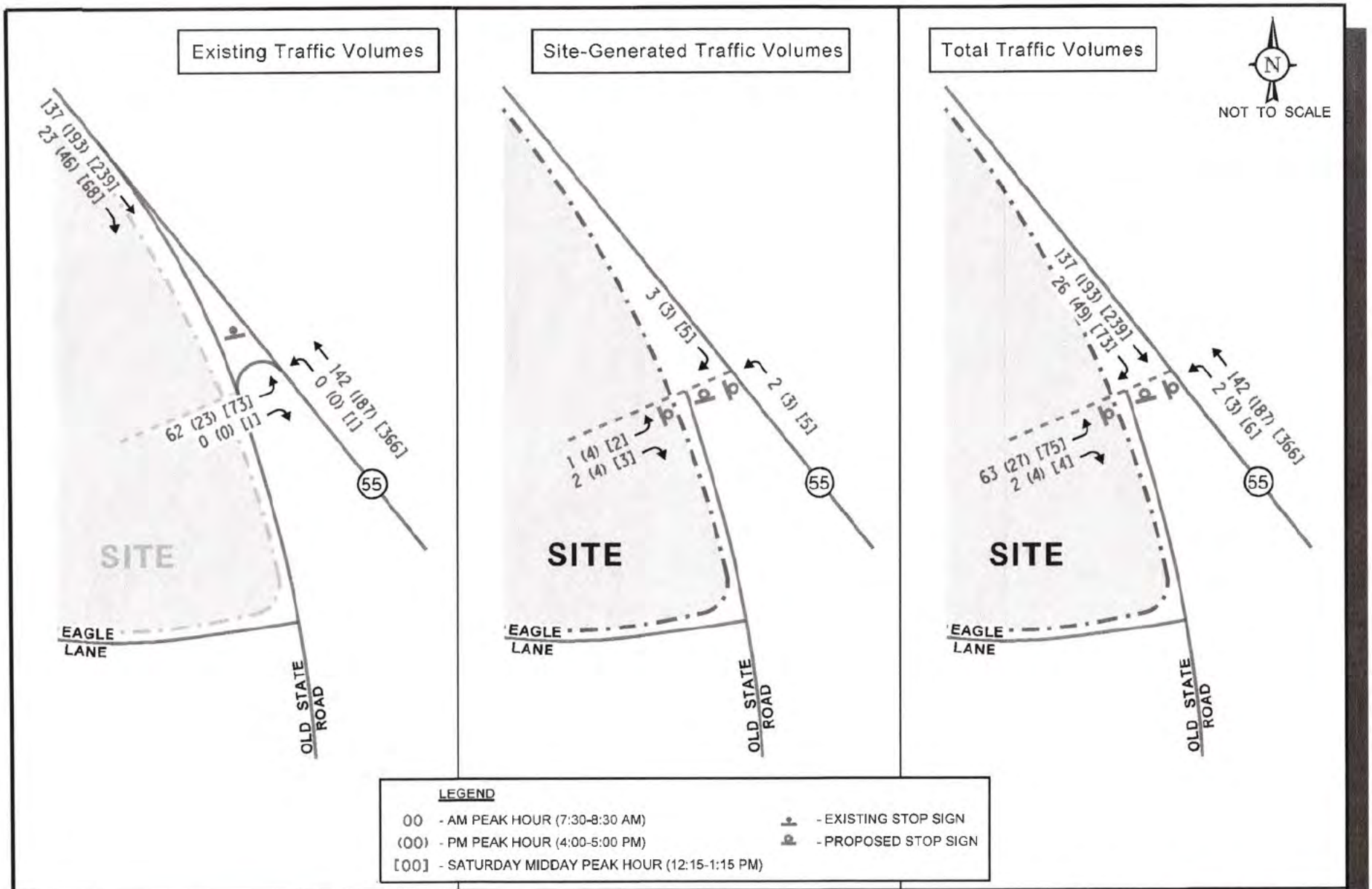
ITE Land Use Code	Land-Use/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour			Daily Two-Way Traffic
		In	Out	Total	In	Out	Total	In	Out	Total	
151	Self-Storage Facility (90,348 s.f.)	5	3	8	6	8	14	10	5	15	132

Traffic Assignment and Evaluation

As previously indicated, State Highway 55 carries approximately 6,000 vehicles daily north of Old State Road and 4,900 vehicles daily south of Old State Road. As such, it can be assumed that Old State Road carries a daily traffic volume of approximately 1,100 vehicles. Taking into consideration the daily traffic volumes, it is estimated that approximately 50 percent of the vehicles generated by the facility will travel to/from the north on State Highway 55, 40 percent will travel to/from the south on State Highway 55, and 10 percent will travel to/from the south on Old State Road. As such, the proposed facility is only anticipated to increase the daily traffic on each of the roadways by approximately one percent daily.

Furthermore, KLOA, Inc. conducted peak period traffic counts at the intersection of Highway 55 with Old State Road. The results of the traffic counts indicated that the weekday morning peak hour occurred at 7:30 A.M., the weekday evening peak hour occurred at 4:00 P.M., and the Saturday midday peak hour occurred at 12:15 P.M. During these hours the intersection carried a total of 364, 449, and 748 vehicles, respectively. As such, the proposed development is only projected to increase the volume of traffic at this intersection by two percent, three percent, and two percent during the weekday morning, weekday evening, and Saturday midday peak hours, respectively. The traffic count summary sheets are included in the Appendix of this memorandum. Overall, the projected peak hour and daily increases in traffic will be minimal and will not have a significant impact on the operations of State Highway 55 or Old State Road.

Figure 1 illustrates the existing, site generated, and total projected peak hour traffic volumes.



Proposed Self-Storage Facility
Donnelly, Idaho

Traffic Volumes

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

Job No: 23-024

Figure: 1

Roadway Geometry Improvements

As previously indicated, the intersection of State Highway 55 with Old State Road occurs at an acute angle which creates sight distance difficulties for vehicles making a northbound left-turn movements from Old State Road onto State Highway 55. As part of the proposed development, due to the proximity of the proposed access drive to the intersection, the following modifications are proposed:

- The proposed access drive will create a 90-degree intersection with State Highway 55.
- Old State Road will be reconfigured to create a 90-degree intersection with the proposed access drive, approximately 100 feet west of State Highway 55.

In order to accommodate the proposed configuration and due to the proposed proximity of the two 90-degree intersections, the following should be included in the design of the intersections:

- The northbound approach of Old State Ride at the proposed access drive should be under stop-sign control.
- The eastbound approaches of the access drive at Old State Road and State Highway 55 should be under stop-sign control.
- The westbound approach of the access drive at Old State Road should operate under free flow conditions to ensure traffic does not back onto State Highway 55
- Signs should be provided for northbound Old State Road at the access drive indicating that traffic from the right does not stop.
- Signs should be provided for eastbound (outbound movements) from the access drive at Old State Road indicating that oncoming traffic does not stop.

Exhibit 1, included in the Appendix, illustrates the preliminary geometry for the proposed intersection and recommended traffic control/signage. Overall, the proposed geometry is desirable as it will significantly improve sightlines for turning movements from/from State Highway 55, particularly northbound left-turn movements from Old State Road onto State Highway 55. Furthermore, given the minimal volume of traffic generated by the proposed facility, the majority of movements occurring at the intersection of Old State Road with the access drive will be northbound right-turn movements and westbound left-turn movements which can occur simultaneously without conflict.

As such, the proposed access drive and intersection configuration will be adequate in accommodating the traffic generated by the proposed development and will enhance the sight lines at the intersection of State Highway 55 with Old State Road.

Turn Lane Warrant Evaluation

When the existing and projected traffic volumes are compared to the right-turn lane warrant criteria published in the *Traffic Manual: Idaho Supplementary Guidance to the MUTCD*, a right-turn lane is warranted under existing conditions during the Saturday midday peak hour. As previously indicated, the proposed development is only estimated to increase the volume of southbound right-turn movements by five during the peak hour. Figure 3B-1 Right-Turn Lane Warrant as provided in the Traffic Manual, is included in the Appendix.

Additionally, given that there are less than five left-turning vehicles projected during the weekday morning and weekday evening peak hours, a left-turn lane is not warranted based on Figure 9-36 published in the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets*, 7th Edition. However, it is estimated that during the Saturday midday peak hour five vehicles would be generated by the self-storage facility. As such, the traffic volumes at this intersection should be monitored upon buildout of the proposed development to determine if the traffic volumes are realized and if the provision of an exclusive left-turn lane or a left-turn bypass lane are needed to accommodate the peak hour traffic volumes.

Conclusions

Based on the preceding evaluation and recommendations, the following conclusions have been made:

- The proposed facility will be a low traffic generator and will increase the daily traffic volumes along the area roadway network by approximately one percent.
- The proposed facility is estimated to generate eight trips during the weekday morning peak hour, fourteen trips during the weekday evening peak hour, and fifteen trips during the Saturday midday peak hour, resulting in one vehicle approximately eight minutes, four minutes, and four minutes, respectively.
- As part of the proposed facility, the intersection of State Highway 55 and Old State Road will be reconfigured to create two 90-degree intersections incorporating access to the proposed facility.
- With the previously described recommendations, as illustrated in Exhibit 1, the newly configured intersections will significantly improve sightlines for vehicles turning to/from State Highway 55, particularly for vehicles making an eastbound to northbound left-turn movement.
- An exclusive right-turn lane is warranted on State Highway 55 at Old State Road under existing conditions during the Saturday midday peak hour but is not warranted during the weekday morning and evening peak hours.
- The intersection of State Highway 55 with Old State Road should be monitored in the future to evaluate if an exclusive left-turn lane or left-turn bypass lane is required.

Appendix

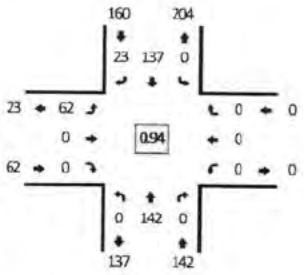
Type of peak hour being reported: Intersection Peak

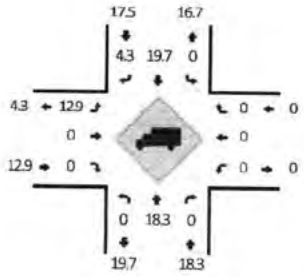
Method for determining peak hour: Total Entering Volume

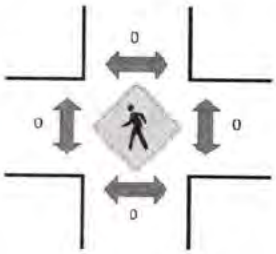
LOCATION: Hwy 55 -- Old State Rd
CITY/STATE: Valley, ID

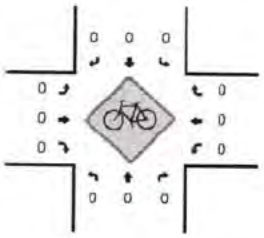
QC JOB #: 161567107
DATE: Thu, May 11 2023

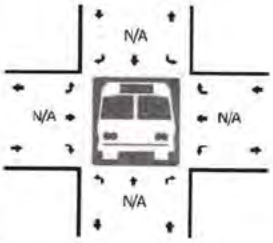
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

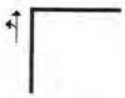


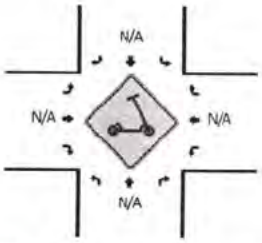












15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	30	0	0	0	20	1	0	16	0	0	0	0	0	0	0	67	
7:15 AM	0	25	0	0	0	24	4	0	16	0	0	0	0	0	0	0	69	
7:30 AM	0	37	0	0	0	39	1	0	15	0	0	0	0	0	0	0	92	
7:45 AM	0	28	0	0	0	33	11	0	20	0	0	0	0	0	0	0	92	320
8:00 AM	0	36	0	0	0	25	7	0	15	0	0	0	0	0	0	0	83	336
8:15 AM	0	41	0	0	0	40	4	0	12	0	0	0	0	0	0	0	97	364
8:30 AM	1	35	0	0	0	27	3	0	4	0	0	0	0	0	0	0	70	342
8:45 AM	0	47	0	0	0	27	2	0	7	0	0	0	0	0	0	0	83	333

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	164	0	0	0	160	16	0	48	0	0	0	0	0	0	0	388
Heavy Trucks	0	28	0		0	36	0		4	0	0		0	0	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/25/2023 12:28 PM

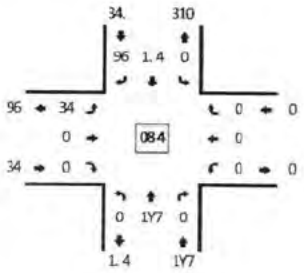
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

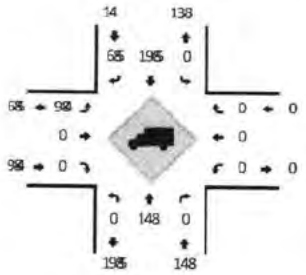
LOCATION: Hwy 55 -- Old State Rd
CIT/, STATE: ValleyDl2

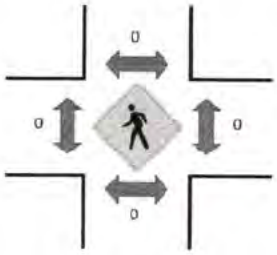
QC JOB #: 16156710Y
2ATE: ThuDMay 11 3034

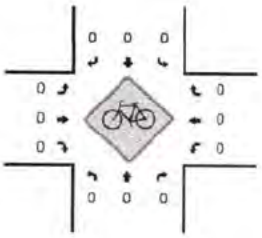


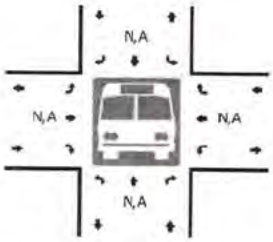
Peak-Hour: 9:00 PM -- 5:00 PM
Peak 15-Min: 9:00 PM -- 9:15 PM

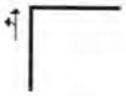
Quality Counts
DATA THAT DRIVES COMMUNITIES

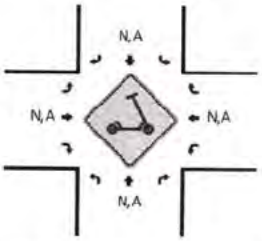












15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
9:00 PM	0	56	0	0	0	93	11	0	13	0	0	0	0	0	0	0	131	
9:15 PM	0	51	0	0	0	46	10	0	6	0	0	0	0	0	0	0	104	
9:40 PM	0	99	0	0	0	53	14	0	1	0	0	0	0	0	0	0	110	
9:95 PM	0	46	0	0	0	64	13	0	9	0	0	0	0	0	0	0	115	99.
5:00 PM	0	96	0	0	0	97	14	0	Y	0	0	0	0	0	0	0	119	993
5:15 PM	0	47	0	0	0	55	.	0	7	0	0	0	0	0	0	0	10Y	997
5:40 PM	0	4.	0	0	0	55	13	1	5	0	0	0	0	0	0	0	113	99.
5:95 PM	0	90	0	0	0	3Y	6	0	7	0	3	0	0	0	0	0	Y4	917

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	339	0	0	0	16Y	99	0	9Y	0	0	0	0	0	0	0	9Y9
Heavy Trucks	0	99	0		0	46	0		9	0	0		0	0	0		Y9
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5, 35, 3034 13:3Y PM

SOURCE: Quality CountsDLLC (http:,, www8ualitycounts8net) 1-Y77-5Y0-3313

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Hwy 55 -- Old State Rd
CITY/STATE: , onnellyDl,

QC JOB #: 16657601
, ATE: SatDJun 22 2023

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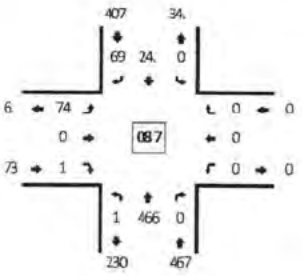
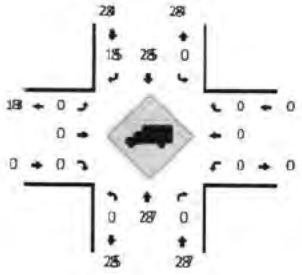
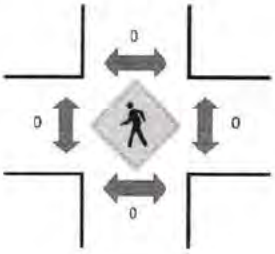
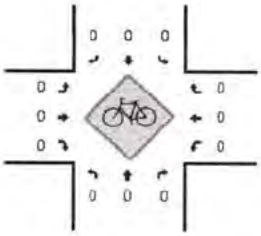
Peak 15-Min: 12:15 PM -- 12:40 PM

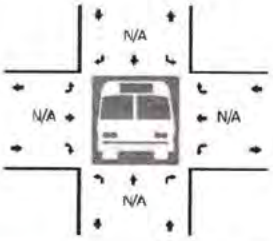


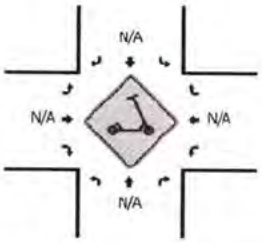


TRUE DATA TO IMPROVE MOBILITY









15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	73	0	0	0	56	14	0	26	0	2	0	0	0	0	0	171	
11:15 AM	1	7.	0	0	0	33	29	0	16	0	4	0	0	0	0	0	171	
11:40 AM	0	93	0	0	0	61	19	0	14	0	0	0	0	0	0	0	176	
11:35 AM	0	73	0	0	0	39	17	0	17	0	1	0	0	0	0	0	157	675
12:00 PM	0	. 5	0	0	0	53	14	0	12	0	1	0	0	0	0	0	175	67.
12:15 PM	0	104	0	0	0	53	13	0	21	0	0	0	0	0	0	0	1. 2	700
12:40 PM	0	91	0	0	0	56	1.	0	27	0	0	0	0	0	0	0	194	707
12:35 PM	0	102	0	0	0	65	13	0	.	0	0	0	0	0	0	0	1. 0	730
1:00 PM	1	90	0	0	0	63	21	0	16	0	1	0	0	0	0	0	194	739
1:15 PM	0	95	0	0	0	61	1.	0	13	0	0	0	0	0	0	0	17.	745
1:40 PM	0	92	0	0	0	63	17	0	13	0	1	0	0	0	0	0	179	740
1:35 PM	1	76	0	0	0	69	11	0	15	0	0	0	0	0	0	0	171	711
2:00 PM	0	79	0	0	0	65	11	0	.	0	0	0	0	0	0	0	164	6. 1
2:15 PM	0	63	0	0	0	. 1	26	0	14	0	1	0	0	0	0	0	1. 5	707
2:40 PM	0	71	0	0	0	53	15	0	19	0	1	0	0	0	0	0	15.	699
2:35 PM	0	7.	0	0	0	74	19	0	.	0	0	0	0	0	0	0	17.	6. 6

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	312	0	0	0	216	56	0	93	0	0	0	0	0	0	0	769
Heavy Trucks	0	12	0		0	3	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/23/2023 1:40 PM

SOURCE: Quality CountsDLLC (http://www&ualitycounts&net) 1-977-590-2212

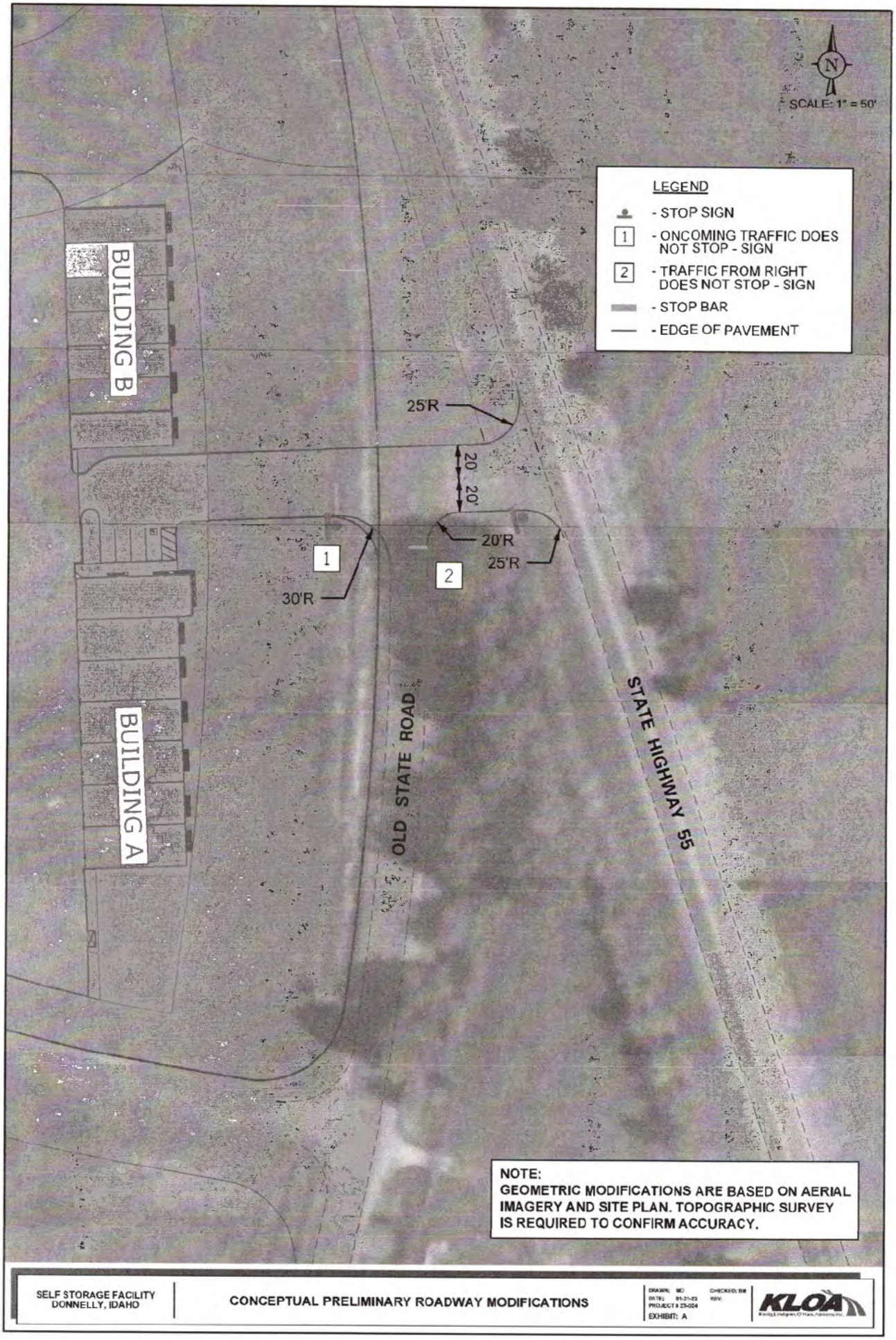

N
SCALE: 1" = 50'
LEGEND
- STOP SIGN
1 - ONCOMING TRAFFIC DOES NOT STOP - SIGN
2 - TRAFFIC FROM RIGHT DOES NOT STOP - SIGN
- STOP BAR
- EDGE OF PAVEMENT
BUILDING B
BUILDING A
25'R
20'
20'
20'R
25'R
1
2
30'R
OLD STATE ROAD
STATE HIGHWAY 55
NOTE:
GEOMETRIC MODIFICATIONS ARE BASED ON AERIAL IMAGERY AND SITE PLAN. TOPOGRAPHIC SURVEY IS REQUIRED TO CONFIRM ACCURACY.
SELF STORAGE FACILITY
DONNELLY, IDAHO
CONCEPTUAL PRELIMINARY ROADWAY MODIFICATIONS
DRAWN: MD
CHECKED: BM
DATE: 01-31-23
REV:
PROJECT # 23-004
EXHIBIT: A
KLOA

Figure 3B-1. Right-Turn Lane Warrant

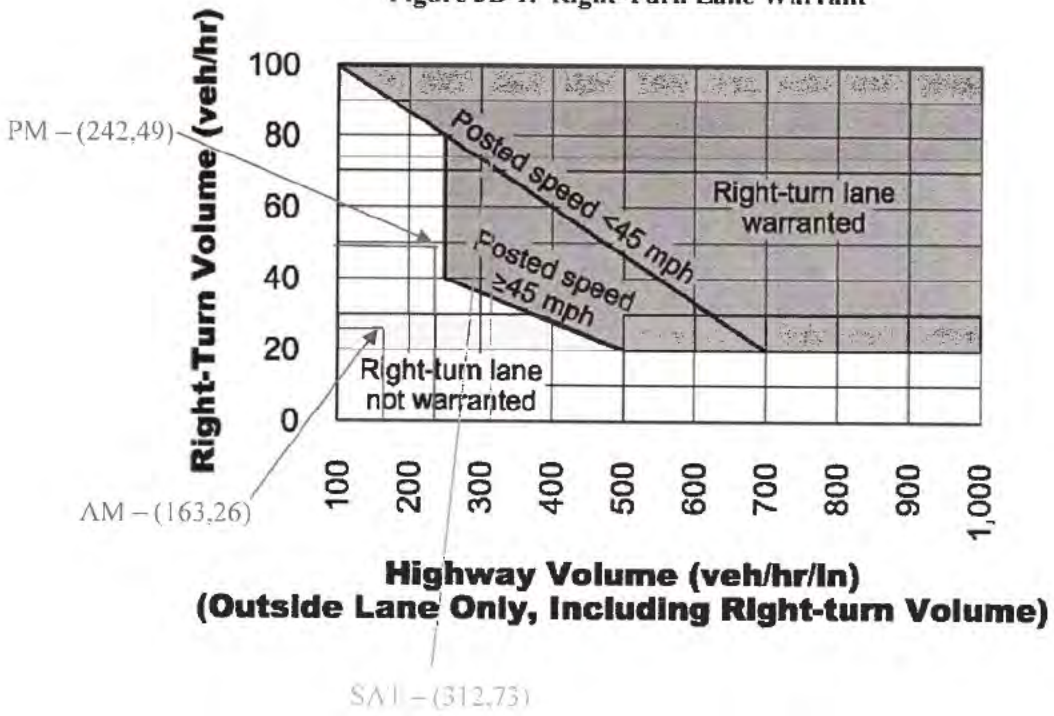


EXHIBIT L

[*Exhibit commences on following page.*]

KLOA
Kenig,Lindgren,O'Hara,Aboona,Inc.

9575 West Higgins Road, Suite 400, Rosemont, Illinois 60018
p: 847-518-0990 f: 847-518-0987

MEMORANDUM TO: Jeff Hatch, AIA Leed AP
Hatch Design Architecture

FROM: Brendan S. May, PE, PTOE
Principal

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DATE: July 26, 2024
Updated: May 21, 2026

SUBJECT: Traffic Impact Statement
Self-Storage Facility
Donnelly, Idaho

This memorandum is an update to a traffic impact evaluation previously prepared by KLOA, Inc. for the proposed self-storage facility to be located in the northwest quadrant of the intersection of Eagle Lane with State Highway 55/Old State Road in Donnelly, Idaho. The update includes a regional growth factor applied to previously collected traffic counts to project buildout conditions and intersection capacity analyses for the existing and projected traffic volumes.

As proposed, the self-storage facility will provide approximately 90,348 square feet of building space. Access to the facility will be provided off State Highway 55 and emergency access will be provided off Eagle Lane. As part of the proposed facility, the intersection of State Highway 55 with Old State Road/the proposed access drive will be reconfigured to provide two 90-degree intersections.

The purpose of this memorandum was to document the existing roadway conditions, estimate the traffic projected to be generated by the self-storage facility, provide a generally assessment of the impact the traffic will have on the adjacent roadway system, and to review the proposed access configuration.

Existing Roadway Characteristics

State Highway 55 is generally a north-south other principal arterial roadway that in the vicinity of the site provides one travel lane in each direction. State Highway 55 operates under free-flow conditions at its intersection with Old State Road. North of Old State Road, State Highway 55 carries an annual average daily traffic (AADT) volume of 6,600 vehicles (Idaho Transportation Department [ITD] 2024) and has a posted speed limit of 45 miles per hour. South of Old State Road, State Highway 55 carries an AADT volume of 5,400 vehicles (ITD 2024) and has as a posted speed limit of 65 miles per hour. State Highway 55 is under the jurisdiction of ITD.

Old State Road is a north-south major collector roadway that in the vicinity of the site provides one travel lane in each direction. Old State Road is under stop sign control at its intersection with State Highway 55. It should be noted that the intersection of State Highway 55 with Old State Road occurs at an acute angle, which creates sight distance difficulties for vehicles making the northbound left-turn movement from Old State Road onto State Highway 55.

Eagle Lane is generally an east-west local roadway that extends from Old State Road approximately 2,500 feet west to its terminus. Eagle Lane serves several residential homes.

Estimated Vehicle Trip Generation

The volume of traffic estimated to be generated by the proposed self-storage facility was based on information published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition. **Table 1** summarizes the estimated vehicle trip generation. As can be seen from Table 1, the proposed facility it supposed to generate a total of 132 (66 inbound and 66 outbound) trips on a typical weekday. Furthermore, the facility is only projected to generate eight total trips during the weekday morning peak hour, fourteen total trips during the weekday evening peak hour, and fifteen total trips during the Saturday midday peak hour. This results in one additional vehicle every eight, four, and four minutes, respectively, during the peak hours.

Table 1
ESTIMATED SITE GENERATED TRAFFIC VOLUMES

ITE Land Use Code	Land Use/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Saturday Midday Peak Hour			Daily Two-Way Traffic
		In	Out	Total	In	Out	Total	In	Out	Total	
151	Self-Storage Facility (90,348 s.f.)	5	3	8	6	8	14	10	5	15	132

Traffic Assignment and Evaluation

As previously indicated, State Highway 55 carries approximately 6,600 vehicles daily north of Old State Road and 5,400 vehicles daily south of Old State Road. As such, it can be assumed that Old State Road carries a daily traffic volume of approximately 1,200 vehicles. Taking into consideration the daily traffic volumes, it is estimated that approximately 50 percent of the vehicles generated by the facility will travel to/from the north on State Highway 55, 40 percent will travel to/from the south on State Highway 55, and 10 percent will travel to/from the south on Old State Road. As such, the proposed facility is only anticipated to increase the daily traffic on each of the roadways by approximately one percent daily.

Furthermore, KLOA, Inc. conducted peak period traffic counts at the intersection of Highway 55 with Old State Road. The results of the traffic counts indicated that the weekday morning peak hour occurred at 7:30 A.M., the weekday evening peak hour occurred at 4:00 P.M., and the Saturday midday peak hour occurred at 12:15 P.M. During these hours the intersection carried a total of 364, 449, and 748 vehicles, respectively. As such, the proposed development is only projected to increase the volume of traffic at this intersection by two percent, three percent, and two percent during the weekday morning, weekday evening, and Saturday midday peak hours, respectively. The traffic count summary sheets are included in the Appendix.

Roadway Geometry Improvements

As previously indicated, the intersection of State Highway 55 with Old State Road occurs at an acute angle, which creates sight distance difficulties for vehicles making the northbound left-turn movement from Old State Road onto State Highway 55. As part of the proposed development, due to the proximity of the proposed access drive to the intersection, the following modifications are proposed:

- The proposed access drive will create a 90-degree intersection with State Highway 55.
- Old State Road will be reconfigured to create a 90-degree intersection with the proposed access drive, approximately 100 feet west of State Highway 55.

In order to accommodate the proposed configuration and due to the proposed proximity of the two 90-degree intersections, the following should be included in the design of the intersections:

- The northbound approach of Old State Road at the proposed access drive should be under stop sign control.
- The eastbound approaches of the access drive at Old State Road and State Highway 55 should be under stop sign control.
- The westbound approach of the access drive at Old State Road should operate under free-flow conditions to ensure traffic does not back onto State Highway 55.
- Signs should be provided for northbound Old State Road at the access drive indicating that traffic from the right does not stop.
- Signs should be provided for eastbound (outbound) movements from the access drive at Old State Road indicating that oncoming traffic does not stop.

Exhibit 1, included in the Appendix, illustrates the preliminary geometry for the proposed intersection and recommended traffic control/signage. Overall, the proposed geometry is desirable as it will significantly improve sightlines for turning movements from/from State Highway 55, particularly northbound left-turn movements from Old State Road onto State Highway 55.

Furthermore, given the minimal volume of traffic generated by the proposed facility, the majority of movements occurring at the intersection of Old State Road with the access drive will be northbound right-turn movements and westbound left-turn movements, which can occur simultaneously without conflict.

Total Projected Traffic Volumes

To determine the total projected traffic volumes, the existing traffic volumes were increased by an ambient growth factor of 0.39 percent per year, based on the annual population growth rate of Donnelly, Idaho. This rate was applied to existing traffic volumes over a four-year period to estimate Year 2027 buildout year background traffic volumes. The background traffic volumes were combined with the traffic estimated to be generated by the proposed development to determine the Year 2027 total projected traffic volumes. **Figure 1** illustrates the existing traffic volumes, the site traffic assignment, and the total projected traffic volumes.

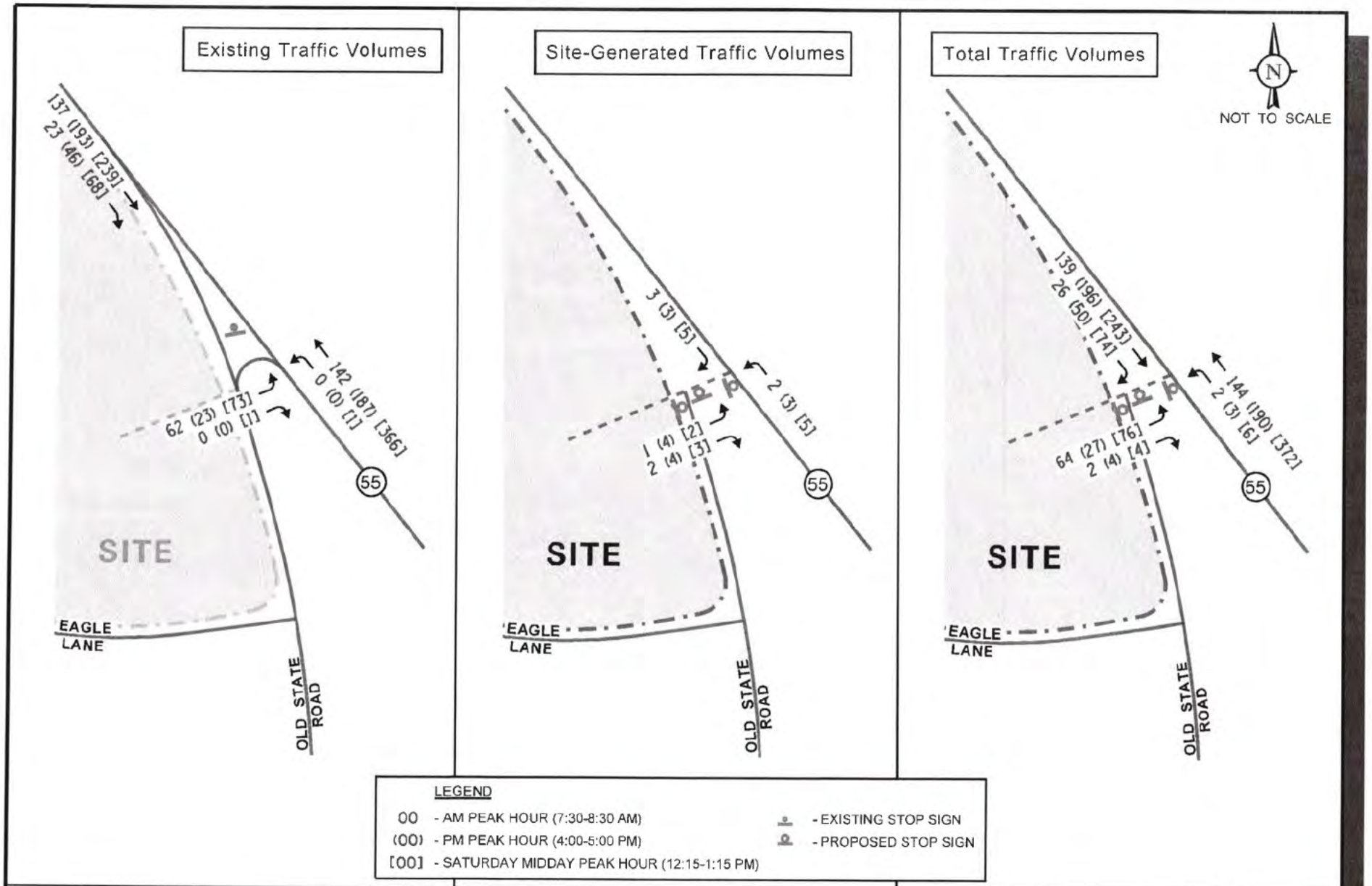
Turn Lane Warrant Evaluation

When the existing and projected traffic volumes are compared to the right-turn lane warrant criteria published in the *Traffic Manual: Idaho Supplementary Guidance to the MUTCD*, a right-turn lane is warranted under existing conditions during the Saturday midday peak hour. As previously indicated, the proposed development is only estimated to increase the volume of southbound right-turn movements by five during the peak hour. Figure 3B-1 Right-Turn Lane Warrant as provided in the Traffic Manual is included in the Appendix.

Additionally, given that there are less than five left-turning vehicles projected during the weekday morning and weekday evening peak hours, a left-turn lane is not warranted based on Figure 9-36 published in the American Association of State Highway and Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets,* 7th Edition. However, it is estimated that during the Saturday midday peak hour five vehicles would be generated by the self-storage facility. As such, the traffic volumes at this intersection should be monitored upon buildout of the proposed development to determine if the traffic volumes are realized and if the provision of an exclusive left-turn lane or a left-turn bypass lane are needed to accommodate the peak hour traffic volumes.

Capacity Analyses

Intersection analyses were performed for the weekday morning, weekday evening Saturday midday peak hours for the existing (Year 2023) and future projected (Year 2027) traffic volumes. The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 7th Edition and analyzed using Synchro 12 software. The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.



Proposed Self-Storage Facility
Donnelly, Idaho

Traffic Volumes

KLOA
Kenig, Lindgren, O'Hara, Aboono, Inc.

Job No: 23-024

Figure: 1

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing and Year 2027 total projected conditions are presented in **Table 2**.

As previously indicated, the intersection of State Highway 55 with Old State Road occurs at an acute angle which creates sight distance constraints for vehicles waiting to turn north onto State Highway 55. When analyzed with the improved intersection geometry, the results of the capacity analysis indicate that the eastbound approach and the northbound left turn movement currently operate at LOS C or better during the weekday morning, weekday evening and Saturday midday peak hours. Under Year 2027 total projected conditions this intersection is projected to continue to operate at the same LOS C or better as existing conditions during the peak hours. It is important to note that the 95th percentile vehicle queue length is projected to one to two vehicles with a volume to capacity (v/c) ratio of less than one, indicating that this will not cause any adjacent and internal conflicts during the peak hours. As such, the proposed intersection geometric improvements will overall enhance the operations of the intersection and will be adequate in accommodating the traffic generated by the proposed development.

Table 2
CAPACITY ANALYSIS RESULTS – STATE HIGHWAY 55 WITH OLD STATE ROAD

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Existing Conditions						
• Eastbound Approach	B	10.0	B	11.5	C	15.1
• Northbound Left Turn	--	--	--	--	A	7.9
Projected Conditions						
• Eastbound Approach	B	10.9	B	11.5	C	15.6
• Northbound Left Turn	A [1]	7.6	A	7.8	A	7.9

LOS = Level of Service
Delay is measured in seconds.
1 – One-way stop sign control

Conclusions

Based on the preceding evaluation and recommendations, the following conclusions have been made:

- The proposed facility will be a low traffic generator and will increase the daily traffic volumes along the area roadway network by approximately one percent.

- The proposed facility is estimated to generate eight trips during the weekday morning peak hour, fourteen trips during the weekday evening peak hour, and fifteen trips during the Saturday midday peak hour, resulting in one vehicle approximately eight minutes, four minutes, and four minutes, respectively.

- As part of the proposed facility, the intersection of State Highway 55 and Old State Road will be reconfigured to create two 90-degree intersections incorporating access to the proposed facility.

- With the previously described recommendations, as illustrated in Exhibit 1, the newly configured intersections will significantly improve sightlines for vehicles turning to/from State Highway 55, particularly for vehicles making an eastbound to northbound left-turn movement.

- An exclusive right-turn lane is warranted on State Highway 55 at Old State Road under existing conditions during the Saturday midday peak hour but is not warranted during the weekday morning and evening peak hours.

- The intersection of State Highway 55 with Old State Road should be monitored in the future to evaluate if an exclusive left-turn lane or left-turn bypass lane is required.

Appendix

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Hwy 55 -- Old State Rd
CITY/STATE: Valley, ID

QC JOB #: 161567107
DATE: Thu, May 11 2023

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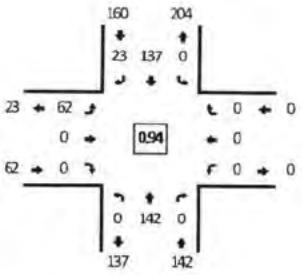
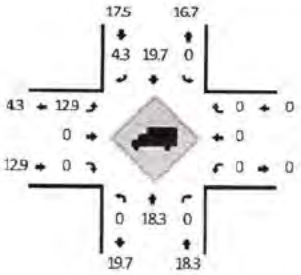
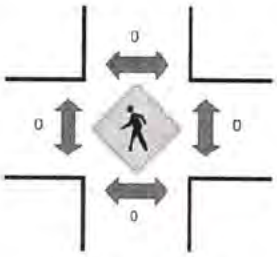
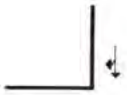
Peak 15-Min: 8:15 AM -- 8:30 AM

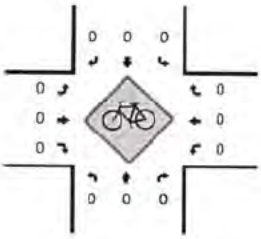


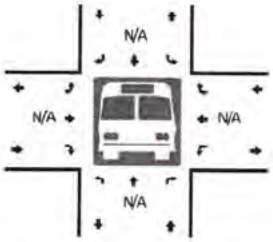


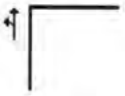
Quality Counts
DATA THAT DRIVES COMMUNITIES

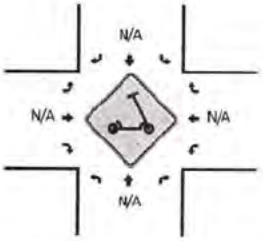












15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	30	0	0	0	20	1	0	16	0	0	0	0	0	0	0	67	
7:15 AM	0	25	0	0	0	24	4	0	16	0	0	0	0	0	0	0	69	
7:30 AM	0	37	0	0	0	39	1	0	15	0	0	0	0	0	0	0	92	
7:45 AM	0	28	0	0	0	33	11	0	20	0	0	0	0	0	0	0	92	320
8:00 AM	0	36	0	0	0	25	7	0	15	0	0	0	0	0	0	0	83	336
8:15 AM	0	41	0	0	0	40	4	0	12	0	0	0	0	0	0	0	97	364
8:30 AM	1	35	0	0	0	27	3	0	4	0	0	0	0	0	0	0	70	342
8:45 AM	0	47	0	0	0	27	2	0	7	0	0	0	0	0	0	0	83	333

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	164	0	0	0	160	16	0	48	0	0	0	0	0	0	0	388
Heavy Trucks	0	28	0		0	36	0		4	0	0		0	0	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/25/2023 12:28 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Hwy 55 -- Old State Rd
CITY/STATE: Valley, ID

QC JOB #: 161567108
DATE: Thu, May 11 2023

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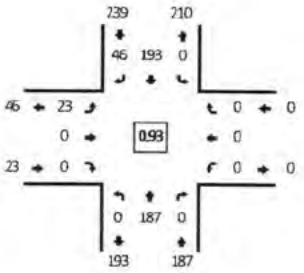
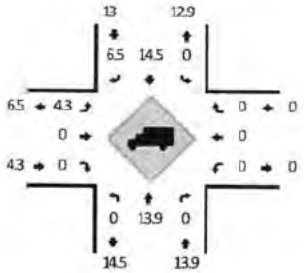
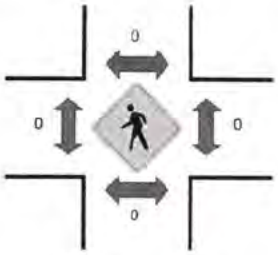
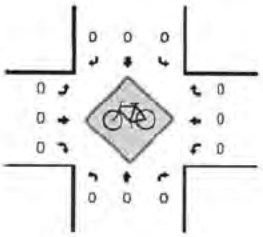
Peak 15-Min: 4:00 PM -- 4:15 PM

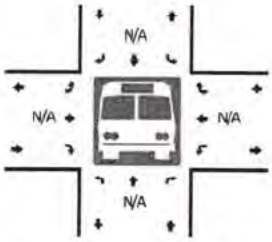


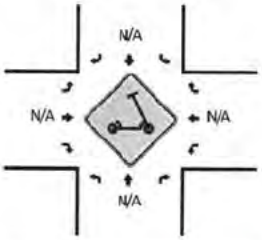


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	56	0	0	0	42	11	0	12	0	0	0	0	0	0	0	121	
4:15 PM	0	51	0	0	0	36	10	0	6	0	0	0	0	0	0	0	103	
4:30 PM	0	44	0	0	0	52	13	0	1	0	0	0	0	0	0	0	110	
4:45 PM	0	36	0	0	0	63	12	0	4	0	0	0	0	0	0	0	115	449
5:00 PM	0	46	0	0	0	47	13	0	8	0	0	0	0	0	0	0	114	442
5:15 PM	0	37	0	0	0	55	9	0	7	0	0	0	0	0	0	0	108	447
5:30 PM	0	39	0	0	0	55	12	1	5	0	0	0	0	0	0	0	112	449
5:45 PM	0	40	0	0	0	28	6	0	7	0	2	0	0	0	0	0	83	417

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	224	0	0	0	168	44	0	48	0	0	0	0	0	0	0	484
Heavy Trucks	0	44	0		0	36	0		4	0	0		0	0	0		84
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 5/25/2023 12:28 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Hwy 55 -- Old State Rd
CITY/STATE: Donnelly, ID

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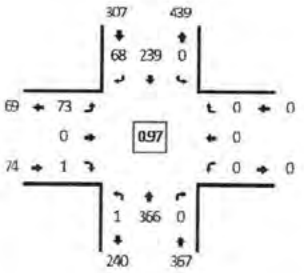
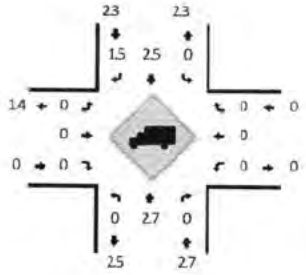
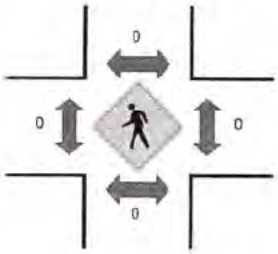
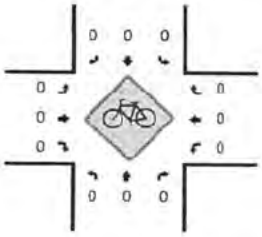
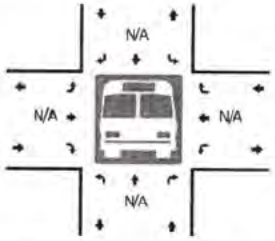
Peak 15-Min: 12:15 PM -- 12:30 PM

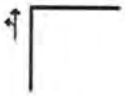


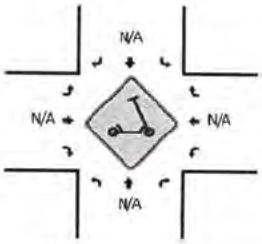












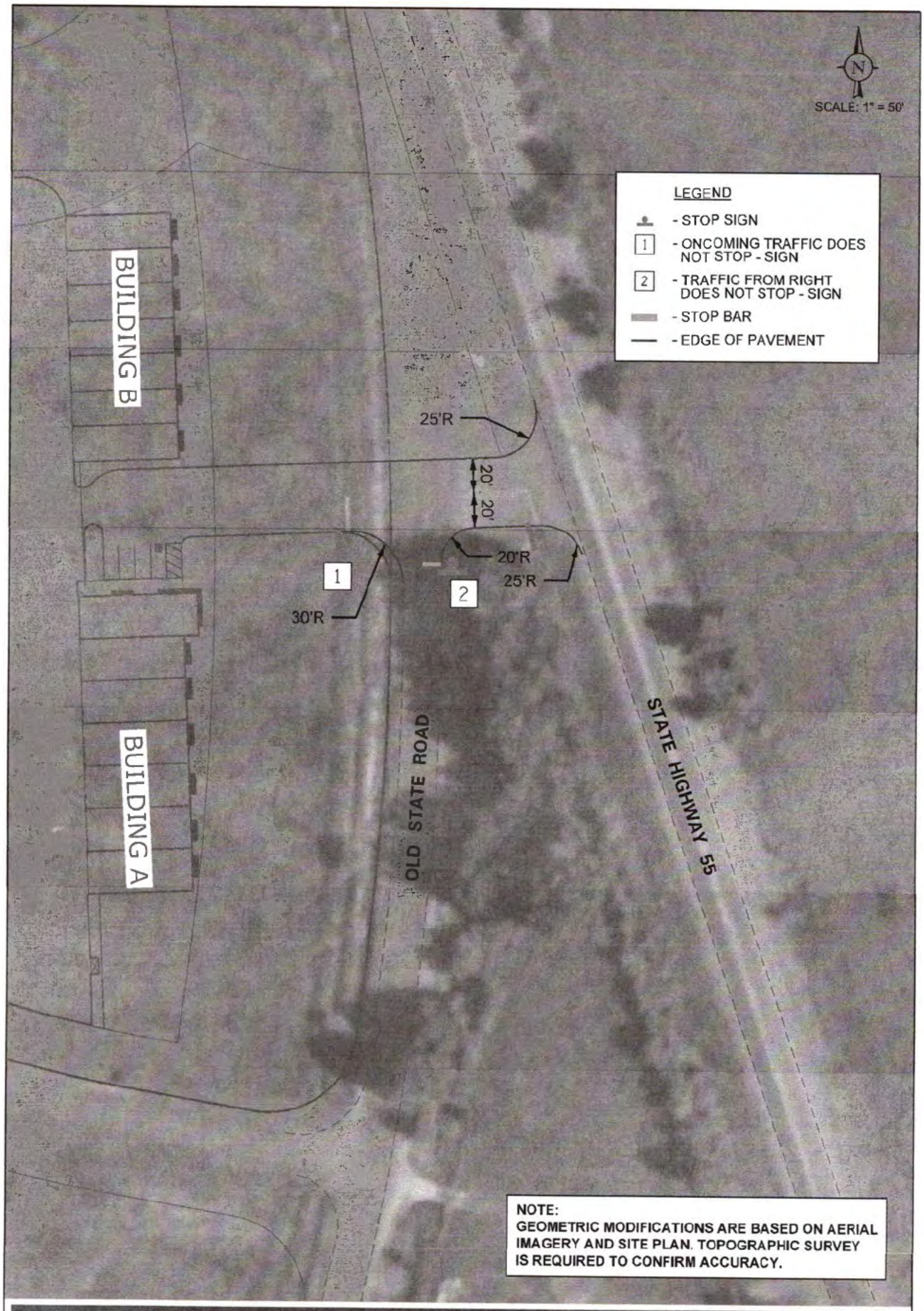
15-Min Count Period Beginning At	Hwy 55 (Northbound)				Hwy 55 (Southbound)				Old State Rd (Eastbound)				Old State Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	0	74	0	0	0	56	13	0	26	0	2	0	0	0	0	0	171	
11:15 AM	1	79	0	0	0	44	28	0	16	0	3	0	0	0	0	0	171	
11:30 AM	0	84	0	0	0	61	18	0	13	0	0	0	0	0	0	0	176	
11:45 AM	0	74	0	0	0	48	17	0	17	0	1	0	0	0	0	0	157	675
12:00 PM	0	95	0	0	0	54	13	0	12	0	1	0	0	0	0	0	175	679
12:15 PM	0	103	0	0	0	54	14	0	21	0	0	0	0	0	0	0	192	700
12:30 PM	0	81	0	0	0	56	19	0	27	0	0	0	0	0	0	0	183	707
12:45 PM	0	102	0	0	0	65	14	0	9	0	0	0	0	0	0	0	190	740
1:00 PM	1	80	0	0	0	64	21	0	16	0	1	0	0	0	0	0	183	748
1:15 PM	0	85	0	0	0	61	19	0	14	0	0	0	0	0	0	0	179	735
1:30 PM	0	82	0	0	0	64	17	0	14	0	1	0	0	0	0	0	178	730
1:45 PM	1	76	0	0	0	68	11	0	15	0	0	0	0	0	0	0	171	711
2:00 PM	0	78	0	0	0	65	11	0	9	0	0	0	0	0	0	0	163	691
2:15 PM	0	64	0	0	0	91	26	0	13	0	1	0	0	0	0	0	195	707
2:30 PM	0	71	0	0	0	54	15	0	18	0	1	0	0	0	0	0	159	688
2:45 PM	0	79	0	0	0	73	18	0	9	0	0	0	0	0	0	0	179	696

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	412	0	0	0	216	56	0	84	0	0	0	0	0	0	0	768
Heavy Trucks	0	12	0		0	4	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 7/24/2024 1:30 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212



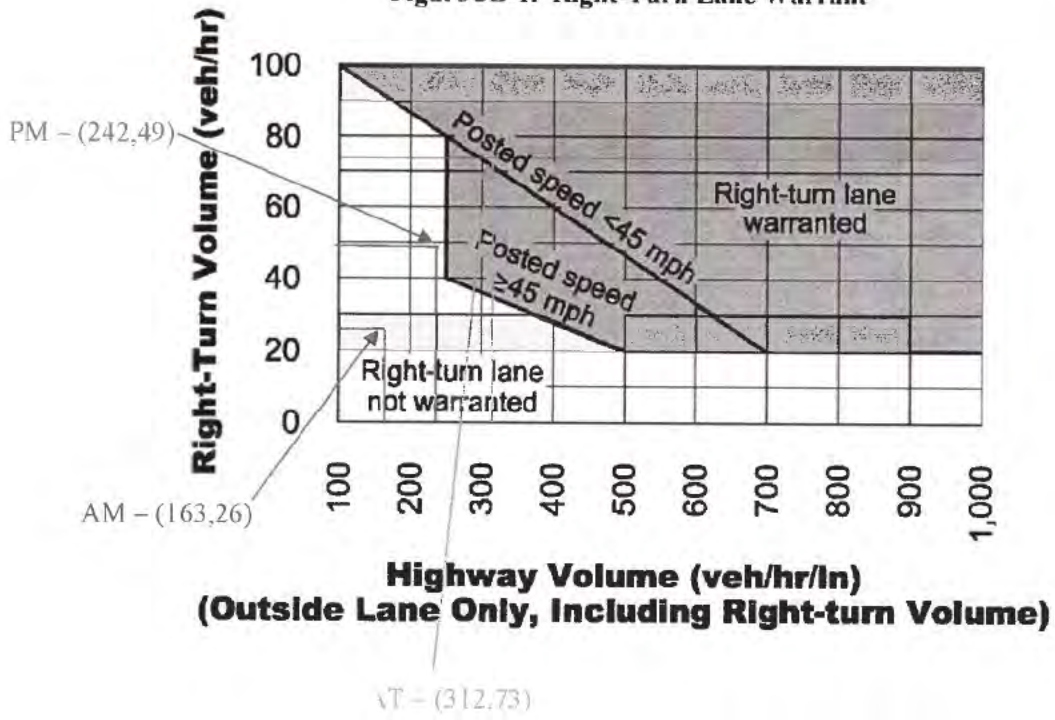
SELF STORAGE FACILITY
DONNELLY, IDAHO

CONCEPTUAL PRELIMINARY ROADWAY MODIFICATIONS

DRAWN: MD CHECKED: BM
DATE: 01-16-25 REVI
PROJECT # 23-036
EXHIBIT: A

KLOA

Figure 3B-1. Right-Turn Lane Warrant



Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	62	0	137	23	0	142
Future Vol, veh/h	62	0	137	23	0	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	0	20	4	0	18
Mvmt Flow	66	0	146	24	0	151

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	309	158	0	0	170	0
Stage 1	158	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	683	893	-	-	1419	-
Stage 1	871	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	683	893	-	-	1419	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	10.83	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1419	-	683	-	-
HCM Lane V/C Ratio	-	-	0.097	-	-
HCM Ctrl Dly (s/v)	0	-	10.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	23	0	193	46	0	187
Future Vol, veh/h	23	0	193	46	0	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	0	15	7	0	14
Mvmt Flow	25	0	208	49	0	201

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	433	232	0	0	257	0
Stage 1	232	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.44	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	576	812	-	-	1320	-
Stage 1	802	-	-	-	-	-
Stage 2	828	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	576	812	-	-	1320	-
Mov Cap-2 Maneuver	576	-	-	-	-	-
Stage 1	802	-	-	-	-	-
Stage 2	828	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	11.53	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	1320	-	576	-	-
HCM Lane V/C Ratio	-	-	0.043	-	-
HCM Ctrl Dly (s/v)	0	-	11.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	73	1	239	68	1	366
Future Vol, veh/h	73	1	239	68	1	366
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	0	3	2	0	3
Mvmt Flow	75	1	246	70	1	377

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	661	281	0	0	316	0
Stage 1	281	-	-	-	-	-
Stage 2	379	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	429	762	-	-	1255	-
Stage 1	769	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	429	762	-	-	1255	-
Mov Cap-2 Maneuver	429	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	694	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	15.14	0	0.02
HCM LOS	C		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	5	-	431	-	-
HCM Lane V/C Ratio	0.001	-	0.177	-	-
HCM Ctrl Dly (s/v)	7.9	0	15.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	64	2	139	26	2	144
Future Vol, veh/h	64	2	139	26	2	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	0	20	4	0	18
Mvmt Flow	68	2	148	28	2	153

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	319	162	0	0	176	0
Stage 1	162	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Critical Hdwy	6.42	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	674	888	-	-	1413	-
Stage 1	867	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	673	888	-	-	1413	-
Mov Cap-2 Maneuver	673	-	-	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	10.92	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	25	-	678		
HCM Lane V/C Ratio	0.002	-	0.104	-	-
HCM Ctrl Dly (s/v)	7.6	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	27	4	196	50	3	190
Future Vol, veh/h	27	4	196	50	3	190
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	4	0	15	7	0	14
Mvmt Flow	29	4	211	54	3	204

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	448	238	0	0	265	0
Stage 1	238	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.44	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	564	806	-	-	1311	-
Stage 1	797	-	-	-	-	-
Stage 2	820	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	563	806	-	-	1311	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	820	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	11.52	0	0.12
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	28	-	586	-	-
HCM Lane V/C Ratio	0.002	-	0.057	-	-
HCM Ctrl Dly (s/v)	7.8	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	76	4	243	74	6	372
Future Vol, veh/h	76	4	243	74	6	372
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	0	3	2	0	3
Mvmt Flow	78	4	251	76	6	384

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	685	289	0	0	327	0
Stage 1	289	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Critical Hdwy	6.41	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	416	755	-	-	1244	-
Stage 1	763	-	-	-	-	-
Stage 2	682	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	413	755	-	-	1244	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB	SE	NW
HCM Ctrl Dly, s/v	15.58	0	0.13
HCM LOS	C		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	SET	SER
Capacity (veh/h)	29	-	423	-	-
HCM Lane V/C Ratio	0.005	-	0.195	-	-
HCM Ctrl Dly (s/v)	7.9	0	15.6	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

EXHIBIT M

[*Exhibit commences on following page.*]

Your Safety • Your Mobility
Your Economic Opportunity

IDAHO TRANSPORTATION DEPARTMENT
P.O. Box 8028 • Boise, ID 83707-2028
(208) 334-8300 • itd.idaho.gov

May 19, 2026

Steve Thiessen, AIT
Entitlement Director
Hatch Design Architecture

Re: Shoemaker Storage; CUP22-34

Dear Steve,

Below is a list of ITD's requirements for the Shoemaker Storage CUP application:

- ITD will not require an updated traffic study for the site, however, a dedicated right-turn lane will need to be installed on SH-55. The right-turn lane will need to meet the Idaho Traffic Manual specifications for the posted speed at this location.
- Reconfigure the SH-55 & Old State Road intersection per previous conversations with ITD.
- All work being done in ITD's right-of-way will need to be addressed via permit.

If you have any questions, you may contact me at Kendra.conder@itd.idaho.gov or 208-334-8377.

Sincerely,

Kendra Conder

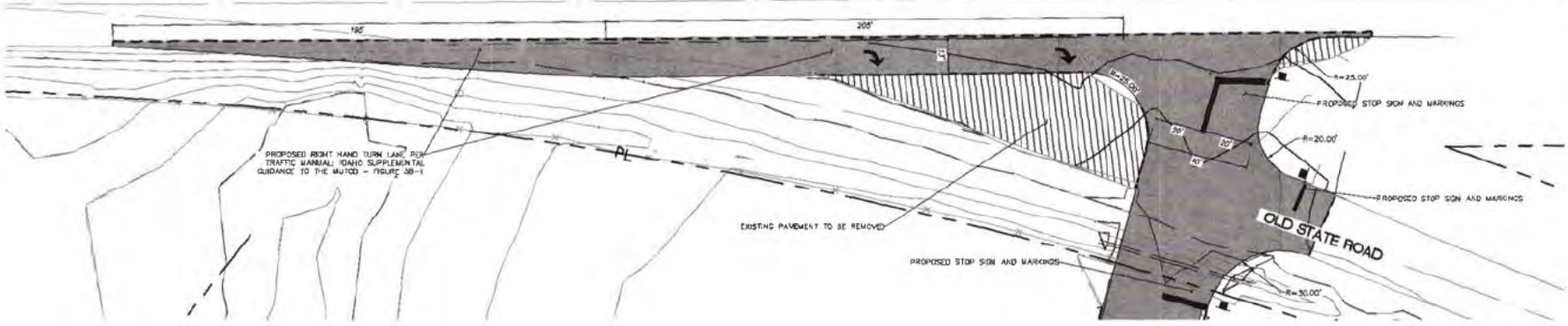
Kendra Conder
D3 Development Services Coordinator
Idaho Transportation Department

EXHIBIT N

[*Exhibit commences on following page.*]

Nasland

STATE HIGHWAY 55



VICINITY MAP
NOT TO SCALE

20 0 20 40 80 160
SCALE: 1" = 20'

SOURCE OF TOPOGRAPHY IS A SURVEY COMPLETED BY TERRAMARK LAND SURVEYING.

ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS RESOLUTION COMPUTED USING GEOID 18, AND ARE SHOWN IN THE NORTH AMERICAN VERTICAL DATUM OF 1988. NO SUITABLE PUBLISHED BENCHMARK WAS FOUND WITHIN A REASONABLE DISTANCE OF THE SUBJECT PROPERTY.

HATCH DESIGN ARCHITECTURE

OLD STATE ROAD IMPROVEMENTS
NWC OLD STATE ROAD AND EAGLE LANE
DONNELLY, ID

DATE 3/21/2026
DRAWN BY RB
CHECKED BY MB
JOB NUMBER 322-1104

STATE HIGHWAY 55 EXHIBIT

EXHIBIT