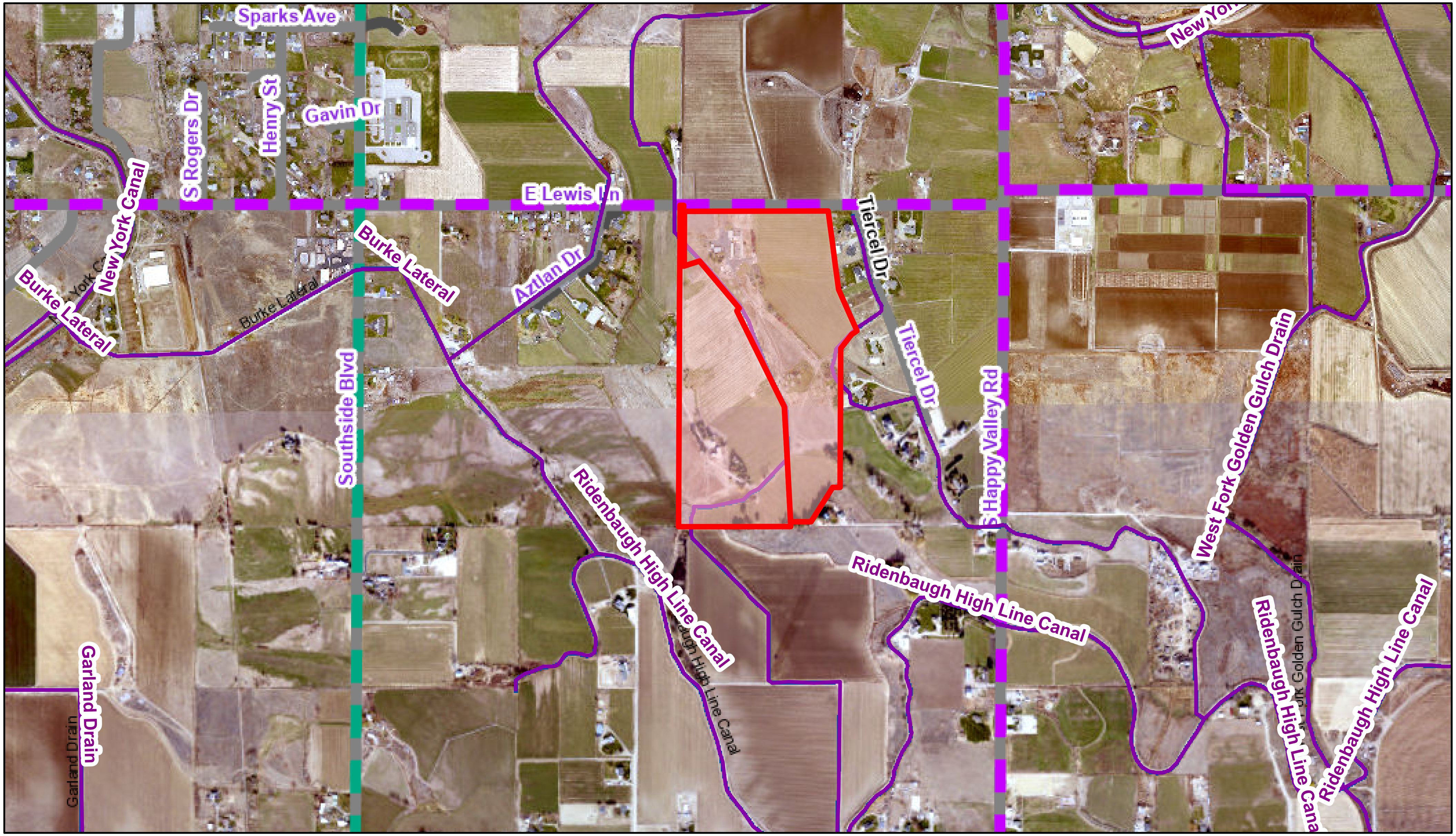
Canyon County, ID Web Map



6/30/2023, 1:57:24 PM

Multiple Parcel Search _Query result
Hydro_NHDFlowline
Hydro_NHDFlowline
CC_PrivateRoads

CanyonCountyRoads
Roads
ITDFunctionalClassification
Major Collector

Minor Arterial
Canyon County Imagery_2019
Red: Band_1
Green: Band_2

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Bureau of Land Management, State of Oregon, State of Oregon DOT, State of Oregon GEO, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

Canyon County, ID

Bureau of Land Management, State of Oregon, State of Oregon DOT, State of Oregon GEO, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | COMPASS | Nampa GIS | City of Nampa |

MASTER APPLICATION

CANYON COUNTY DEVELOPMENT SERVICES DEPARTMENT

111 North 11th Avenue, #140, Caldwell, ID 83605
www.canyonco.org/dsd.aspx Phone: 208-454-7458 Fax: 208-454-6633

CANYON COUNTY IDAHO ·1892·

PROPERTY OWNER	OWNER NAME: *Corsberg Land, LLC (Audrey & Terry Corsberg)*	
	MAILING ADDRESS: *3901 E. Lewis Ln, Nampa ID 83686*	
	PHONE: *Audrey: 208-250-9809* *Terry: 208-936-8527*	EMAIL: *terrycorsberg@gmail.com*

I consent to this application and allow DSD staff / Commissioners to enter the property for site inspections. If owner(s) are a business entity, please include business documents, including those that indicate the person(s) who are eligible to sign.

Signature: Audrey Corsberg *Date:* 7/13/21

(AGENT) ARCHITECT ENGINEER BUILDER	CONTACT NAME: *Lance Warnick*	
	COMPANY NAME: *Aspen Engineers*	
	MAILING ADDRESS: *1619 N. Linder Rd, Suite 110, Kuna ID 83634*	
	PHONE: *208-466-8181*	EMAIL: *Lance@AspenEngineers.com*

SITE INFO	STREET ADDRESS: *3901 & 4001 E. Lewis Ln, Nampa ID 83686*			
	PARCEL #: *R295331050 & R295330000*	LOT SIZE/AREA: *77.63 Acres*		
	LOT:	BLOCK:	SUBDIVISION:	
	QUARTER: *NE 1/4*	SECTION: *13*	TOWNSHIP: *2N*	RANGE: *2W*
	ZONING DISTRICT: *Rural-Residential*	FLOODZONE (YES/NO): *NO*		

HEARING LEVEL APPS	____CONDITIONAL USE	____COMP PLAN AMENDMENT	____CONDITIONAL REZONE
	____ZONING AMENDMENT (REZONE)	____DEV. AGREEMENT MODIFICATION	____VARIANCE > 33%
	____MINOR REPLAT	____VACATION	____APPEAL
	____SHORT PLAT SUBDIVISION	____PRELIMINARY PLAT SUBDIVISION	X FINAL PLAT SUBDIVISION

DIRECTORS DECISION APPS	____ADMINISTRATIVE LAND DIVISION	____EASEMENT REDUCTION	____SIGN PERMIT
	____PROPERTY BOUNDARY ADJUSTMENT	____HOME BUSINESS	____VARIANCE 33% >
	____PRIVATE ROAD NAME	____TEMPORARY USE	____DAY CARE
	____OTHER________		

CASE NUMBER:	SD2021-0045	DATE RECEIVED:	8-5-21
RECEIVED BY:	CL	APPLICATION FEE:	1160.00 CK MO CC CASH

Revised 1/3/21

Lots: 13

CANYON COUNTY DEVELOPMENT SERVICES

111 North 11th Avenue, Caldwell, ID 83605 Phone: 208-454-7458 Fax: 208-454-6633

FINAL PLAT CHECKLIST

APPLICANT: TJ WELLARD FOR CLIENT	SUBIVISION NAME: MEADOW BLUFF ESTATES SUB
LAND USE CASE #:	SUBDIVISION CASE #:

CANYON COUNTY CODE OF ORDINANCES 12-008, § 07-17-13(1-6)
The information hereinafter required as part of the preliminary plat submitted shall be shown graphically or by note on plans, and may comprise several sheets showing various elements or required data.

	APP.	DSD/SRT
1. METHOD & MEDIUM OF PRESENTATION:		
A. All plats to be recorded shall be prepared on a drafting medium in accordance with Requirements of Idaho Code title 55, chapter 19, paragraph (1) for Records of Survey Maps.	☑	☐
B. The plat shall be drawn to an accurate scale of not more than one hundred feet to inch (100'=1") unless otherwise approved by DSD prior to submission.	☑	☐
C. The final plat drawing shall be additionally submitted in digital form approved by the Director.	☑	☐
2. IDENTIFICATION DATA REQUIRED:		
A. A title which includes the name of the subdivision and its location by number of section, township, range and county shall be placed together at one location at the top of the sheet and generally centered.	☑	☐
B. Name, address and official seal of the surveyor preparing the plat.	☑	☐
C. North arrow	☑	☐
D. Date of the preparation	☑	☐
E. Revision block showing dates of any revisions subsequent to the original preparation date. The revision block shall be part of the title block which shall be placed along the right edge of the drawing.	☑	☐
3. SURVEY DATA REQUIRED:		
A. Boundaries of the tract to be subdivided and the interior lots are to be fully balanced and closed, showing all bearings and distances determined by an accurate survey in the field. All dimensions shall be expressed in feet and decimals thereof.	☑	☐
B. Any excepted lots within the plat boundaries shall show all bearings and distances determined by an accurate survey in the field. All dimensions shall be expressed in feet and decimals thereof.	☑	☐
C. Basis of bearing on the plat shall be referenced.	☑	☐

F. Approval or certification of comment by impacted agencies that may include: highway districts, health department, the city when the development is in an area of city impact, treasurer, recorder, and state and federal agencies having jurisdiction.	☐ ✓	☐

DSD SUBDIVISION REVIEW TEAM USE ONLY – DO NOT WRITE BELOW THIS LINE

FINAL PLAT REVIEWED ON: ______/ ______/______.

COMPLIANCE WITH CONDITIONS OF APPROVAL:
☐ **YES** ☐ **NO** ☐ **N/A**

VERIFICATION OF APPROVED ROAD NAMES IN ACCORDANCE WITH PRELIMINARY PLAT:

☐ **YES** ☐ **NO** ☐ **N/A**

SRT COMMENTS:

____

____

____

DECISION:

☐ **APPROVED** ☐ **DENIED**

SRT COMMENTS:

____

____

____

NOTE:

1. If you would like to attend the Subdivision Review Team Meeting please contact our office at 208-454-7458.
2. If you are submitting revisions of your plat and there are items you feel were marked in error, please provide a written explanation as to why these items should not have been redlined.

Final Plat Application Checklist

Canyon County Development Services
111 North 11th Avenue, #140, Caldwell, ID 83605.
Phone 208-454-7458 fax 208-454-6633
www.canyoncounty.org

The following list details items that must be submitted with your application.

☑ Master Application completed and signed
☑ Copy of Final Plat
☑ Final Plat Checklist
NA ☐ Evidence that all improvements have been completed or ☐ Bonded per CCC 07-23-25 (4)
☑ Final Drainage Plan, if applicable ☑ Final Irrigation Plan, if applicable ☑ Final Grading Plan, if applicable
☑ Construction Drawings for all required improvements §07-17-29 (3)
☑ Fees

NOTE:

After the plat has been reviewed and found in compliance **an additional five (5) copies and one electronic version of the final plat** shall be submitted.

Development Services Department

Canyon County, 111 North 11th Avenue, Caldwell, ID 83605

(208) 454 7458 ▪ (208) 454 6633 Fax ▪ Zoninginfo@canyonco.org ▪ www.canyonco.org/dsd

Dear Property Owners/Applicants,

On behalf of the Canyon County Development Services Department – Planning Division, we thank you for your interest in developing in our community. Our department's number one priority is providing quality customer service. Unfortunately, due to the lack of planning staff and the current labor market conditions, we are falling short of that mission.

As of September 1, 2022, we have over 200 planning projects currently in queue. We are also working diligently on the adoption and implementation of the 2030 Canyon County Comprehensive Plan. The Planning Division has recently lost experienced planners, which has impacted application processing time. Besides myself, our division has just one (1) Planner III, whose primary focus is the 2030 Canyon County Comprehensive Plan. The rest of the division is mainly new planners and planner technicians training to get up to speed.

As our department works to get back to a normal processing time, we ask that you please be patient with our staff. They are working day in and day out to keep up with the growing needs of our county. Moving forward, we will continue to review applications in the order they are received and prioritize them accordingly. If your application has been recently filed and you want to withdraw, we will be more than happy to refund your application fee. If you wish to remain on file, please know that we will get to it as quickly as possible.

Please don't hesitate to contact us with questions or concerns.

Thanks in advance for your patience and understanding.

Sincerely,

Dan Lister
Planning Official - Development Services Department

FINAL PLAT SUBMITTAL LIST

CANYON COUNTY DEVELOPMENT SERVICES DEPARTMENT
111 North 11th Avenue, #140, Caldwell, ID 83605
www.canyonco.org/dsd.aspx Phone: 208-454-7458 Fax: 208-454-6633

THE FOLLOWING ITEMS MUST BE SUBMITTED WITH THIS CHECKLIST:

☒	Master Application completed and signed
☒	Copy of Final Plat
— FUTURE	Evidence that all improvements have been completed or bonded per CCZO § 07-17-29 (4)
☒	Final Drainage Plan, if applicable
☒	Final Irrigation Plan, if applicable IN CONSTRUCTION PLANS
☒	Final Grading Plan, if applicable
☒	Construction Drawings for all required improvements § 07-17-29 (3)
☒	**$930 +$10/lot +$100(if in an area of impact) non-refundable fee**

NOTE:

1. After the plat is reviewed and found to be in compliance, an **additional five (5) copies and one electronic version of the final plat** shall be submitted.

PROCESS: PUBLIC HEARING

Canyon County Development Services

111 N. 11th Ave. Room 140, Caldwell, ID 83605
(208) 454-7458

Building Division Email: buildinginfo@canyonco.org **Planning Division Email:** zoninginfo@canyonco.org

Receipt Number: 59951 Date: 8/5/2021

Date Created: 8/5/2021 **Receipt Type:** Normal Receipt **Status:** Active

Customer's Name: Corsberg Land LLC

Comments: SD2021-0045 Location R295331050 & R29533 Red Tail Estaes #3

CHARGES

Item Being Paid For:	Application Number:	Amount Paid:	Prevs Pymnts:	Unpaid Amnt:
Planning - Final Plat Addition City Impact Area Fee	SD2021-0045	$100.00	$0.00	$0.00
Planning - Final Plat	SD2021-0045	$930.00	$0.00	$0.00
Planning - Final Plat Addition Per Lot Fee (Per Application)	SD2021-0045	$130.00	$0.00	$0.00

Sub Total: $1,160.00

Sales Tax: $0.00

Total Charges: $1,160.00

PAYMENTS

Type of Payment:	Check/Ref Number:	Amount:
Check	886	$1,160.00

Total Payments: $1,160.00

ADJUSTMENTS

Receipt Balance: $0.00

Issued By: clamb

NATURAL RESOURCE SOLUTIONS, LLC

Consulting, Soil Evaluations & Data Collection

March 23, 2021

HARLEY R. NOE
Phone: 208.850.4926
Fax: 208.939-8602

Lance Warnick, PE
Aspen Engineers
1619 N. Linder Road
Suite 110
Kuna, ID 83634

RE: Soil evaluation for storm water facilities

Today I observed soils at two locations on the Red Tail #3 project at 3901 and 4001 East Lewis Lane in Nampa. Attached are detailed profile descriptions of those test pits and a Google Earth based map showing the location of the excavations. You requested soil conditions present and suitability of the materials for stormwater systems.

SOIL CONDITIONS

The soils in both holes have moderately fine silty clay loams and loams in the surface layer 12 to 23 inches deep. Silt loams, loams and fine sandy loams are present in the subsoil from 3.5 to 4.5 feet below ground level. Test pit 4-21 has silt loams to the bottom of the excavation depth at 13 feet. At test pit 14-21 a moderately cemented hardpan was observed between 51 and 71 inches deep which dug with some resistance. Below 71 inches to 109 inches was a second, weaker hardpan that could be broken with the hands and fingers. Silt loams and sandy loams are present in the deep substratum below 65 an 109 inches in the two test pits respectively.

STORMWATER SYSTEM

Permeability rates are provided for each horizon shown on the descriptions. Beneath the topsoil and throughout the profile, permeability rates are mostly between 1 to 4 inches per hour. The hardpan in test pit 14-21 has restricted permeability. That layer should be broken out and either removed or replaced back in the trench. Other than the pan layer, all soils are free-drained. It appears that the deep substratum loams and silt loams will be the most likely receiving soil for storm drainage swales or seepage beds. If more rapid permeability is needed, all soils above 8 feet should be removed and replaced with filter sand.

CONCLUSIONS

These soils should perform well for the projected use. As requested I collected 4 buckets of the 12 to 23 inch layer which will be delivered to the CMT Lab for R-value and compaction testing. I would predict a rather low R-value, possibly in the 10 to 15 range or less. The only profile restriction is the hardpan in the 14-21 test pit. Depending on variation of soils across the landscape that restriction can be removed if it appears to be a problem. These hardpans are moderately expressed, but dig without difficulty with larger excavating equipment.

Should you have questions or need anything additional, please contact me.

transmitted via e-mail

HARLEY R. NOE
Professional Soil Scientist

cc w/attachments: Audrey Corsberg, Corsberg Land, LLC, 3901 E. Lewis Lane, Nampa, ID 83686

Natural Resource Solutions, LLC

Storm Drain Test Hole Description & Evaluation

Date Of Evaluation: 3/23/2021 Evaluated by: **Harley Noe,** Professional Soil Scientist
Requested By: Corsberg Land, LLC (Audrey Corsberg)
Address: 3901 E. Lewis Lane Phone: (208) 250-9809
City: Nampa State: Idaho Zip: 83686
Legal Desc: part of the west 1/2 of the NE 1/4 Section 13, Township 2 North, Range 2 West, Boise Meridian
Canyon County, Idaho
General Desc: 1/2 mile west of Happy Valley Road to south.

Hole Number & Location: ***TP4-21 43.517136 latitude; -116.520599 longitude***

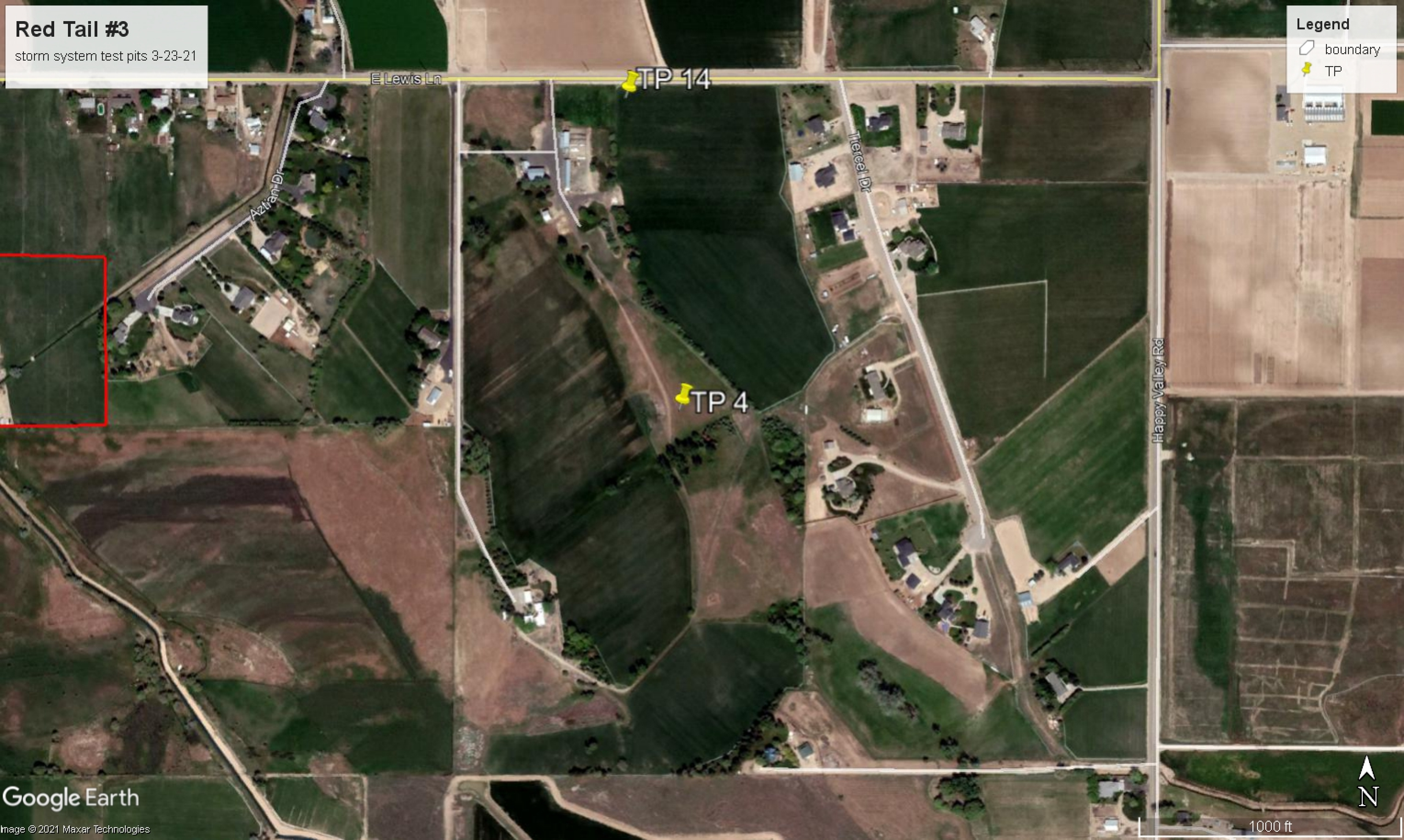
Depth (inches)	Moist Munsell Color	USDA Texture	Clay %	Roots	Mottles	Est. Permeability (in/hr)	Comments
0 to 12	10YR 3/3	silt loam	24 to 26	fine; common medium	none	0.5 to 1	friable moist; approaches silty clay loam
12 to 24	10YR 5/4	loam	10 to 12	common very fine, fine & medium	none	1 to 2	very friable moist; weak subangular blocky structure
24 to 46	10YR 6/4	loam	10 to 12	few very fine & fine	none	1 to 2	very friable moist; approaches fine sandy loam
46 to 65	10YR 4/4	silt loam	13 to 15	few very fine & fine	none	1 to 2	approaches loam; 20% 3" diameter rounded basalt fragments
65 to 156+	7.5YR 5/3	silt loam	17 to 18	none	none	1 to 2	40% 3" to 12" basalt fragments

General Notes: Slope 1 to 3 percent. There are pockets in the bottom horizon that are 3 feet in diameter that do not have basalt fragments. All layers below 46 inches are very dry and loose and act like flour. No wetness features present in profile to more than 13 feet.

Hole Number & Location: ***TP14-21 43.513891 latitude; -116.519833 longitude***

Depth (inches)	Moist Munsell Color	USDA Texture	Clay %	Roots	Mottles	Est. Permeability (in/hr)	Comments
0 to 13	10YR 4/3	silty clay loam	28 to 30	many very fine & fine; few medium	none	0.2 to 0.6	friable moist; strong, fine granular structure
13 to 23	10YR 4/4	silt loam	18 to 20	common very fine & fine	none	1 to 2	subangular blocky structure; approaches fine & very fine sandy loam
23 to 40	10YR 5/4	fine sandy loam	12 to 14	few very fine & fine	none	2 to 4	moderately dense in place; friable moist
40 to 57	10YR 3/4	sandy loam	12 to 14	few very fine & fine	none	2 to 6	moderately dense in place; firm moist
57 to 71	10YR 6/2	moderately cemented hardpan	na	none	none	0.5 to 1	cannot be broken with the hands; fractured
71 to 109	10YR 4/3	weakly cemented hardpan	na	none	none	1 to 2	breaks and crumbles with fingers
109 to 156+	10YR 4/3	sandy loam	16 to 18	none	none	2 to 4	slightly dense in place; loose when broken

General Notes: Slope 0 to 2 percent. No wetness features present in the profile. Fine sands are dominant size. All layers are free drained. ***Samples were taken from the 13 to 23 layer and submitted to CMT Labs for R-value and Proctor testing.***


Red Tail #3
storm system test pits 3-23-21
Legend
boundary
TP
TP 14
TP 4
E Lewis Ln
Aztlan Dr
Tiercel Dr
Happy Valley Rd
Google Earth
Image © 2021 Maxar Technologies
1000 ft
N

ASPEN ENGINEERS

Drainage Report

for

RED TAIL ESTATES SUBDIVISION NO. 3

3901 & 4001 E. Lewis Ln
Nampa, Idaho

Prepared for
Corsberg Land, LLC
3901 E. Lewis Lane
Nampa, ID 83686
Contact: Audrey Corsberg
(208) 250-9809

Prepared by
Lance Warnick, PE
Principal Engineer
Aspen Engineers, Chartered

PROFESSIONAL ENGINEER
REGISTERED
Lance Warnick
10077
07/23/2021
STATE OF IDAHO
LANCE WARNICK

Date Prepared
July 23, 2021

Aspen File **20061**

Aspen Engineers, Chartered
1619 N. Linder Rd, Suite 110
Kuna, Idaho 83634
208-466-8181
AspenEngineers.com

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7. Size Swale for Basin #1 ... 13
8. Drainage Calculations for Area #2A ... 14
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Appendices

A. Runoff Coefficient and Rainfall Intensity. ... 2 pages
B. Operation and Maintenance Forms ... 5 pages
C. Soils Report by NRS (March 23, 2021) ... 4 pages
D. R-Value Testing ... 1 page

1. Project Description

These calculations and attachments provide the background for the design for a new stormwater management system associated with the proposed development of Red Tail Estates Subdivision No. 3 located at 3901 & 4001 E. Lewis Ln in Nampa, Idaho. These calculations, together with the associated civil engineering plans are meant to provide information on the anticipated size and location of the drainage facilities that will be used to manage stormwater runoff from the development.

This site is somewhat unique is that there are gravity irrigation ditches along both sizes of the new roadway which are intended to intercept runoff from the gravity irrigation system and direct it toward the historical discharge points along west and north boundaries of the property. Therefore, only stormwater from the new road and the portions of the adjoining lots between the road and the gravity irrigation system needs to be considered in sizing the storm drain system. Stormwater runoff from the lots adjacent to the roads will be intercepted by the gravity irrigation ditches.

As shown on the construction plans, stormwater runoff from the proposed roadway will be directed to flow toward one of 2 swales—one located in Lot 1 near the north end of the property, and the other located in Lot 4 which is approximately the midpoint of the proposed roadway.

A map showing the area for each drainage basin is included on Page 6.

The sizes of the culverts that will convey stormwater runoff from the road were sized using the calculated peak flow for the time of concentration determined for each drainage area. The general configuration and area of the drainage basins are shown. Calculations for sizing the swales are included. There are then appendices that outline the anticipated runoff coefficients and rainfall intensity.

Results for the R-Value testing is included in Appendix D.

2. Sources of Information and Applicable Standards

The following sources of data were used in preparing these calculations:

A. Idaho Standard Public Works Construction Committee. Idaho Standards for Public Works Construction, Current Edition.

B. Catalog of Stormwater Best Management Practices for Idaho Cities and Counties (2005).

C. Highway Standards and Development Procedures for the Association of Canyon County Highway Districts (2017).

3. Operation and Maintenance

This section is intended to address some anticipated operation of maintenance items that may need to be considered by the Homeowner's Association as part of the stormwater management system for the site.

A complete and thorough system inspection using the attached Inspection and Maintenance Forms (see Appendix C) shall be done three times a year (March, July and November and after any storm event that produces more than 0.5 inches of rainfall.

All maintenance work shall be done in accordance with OSHA regulations. All maintenance personnel shall always remember that safety is the first priority. Maintenance personnel should have the proper safety equipment (e.g., heavy boots, gloves, boots, first aid kits) and be properly trained before conducting any maintenance work.

As shown on the plans the swale will be lined with rocks or vegetation or other suitable materials to help reduce the potential for erosion.

The landscaped area of the site shall be regularly maintained through mowing, raking, etc. in order help keep the swale free from debris.

Dirt, leaves, grass clippings, and other materials shall be kept out of the street, borrow ditches, culverts and swale in order to avoid clogging the infiltration area in the bottom of the swale.

Contact utility companies before beginning to excavate any site since underground utilities may be present. Cover or clearly mark excavated areas that cannot be filled by the end of the day in order to alert site employees and visitors of the potential risk. Also, be aware of overhead utilities (e.g., electrical wires, cable, telephone) that could come into contact with maintenance equipment.

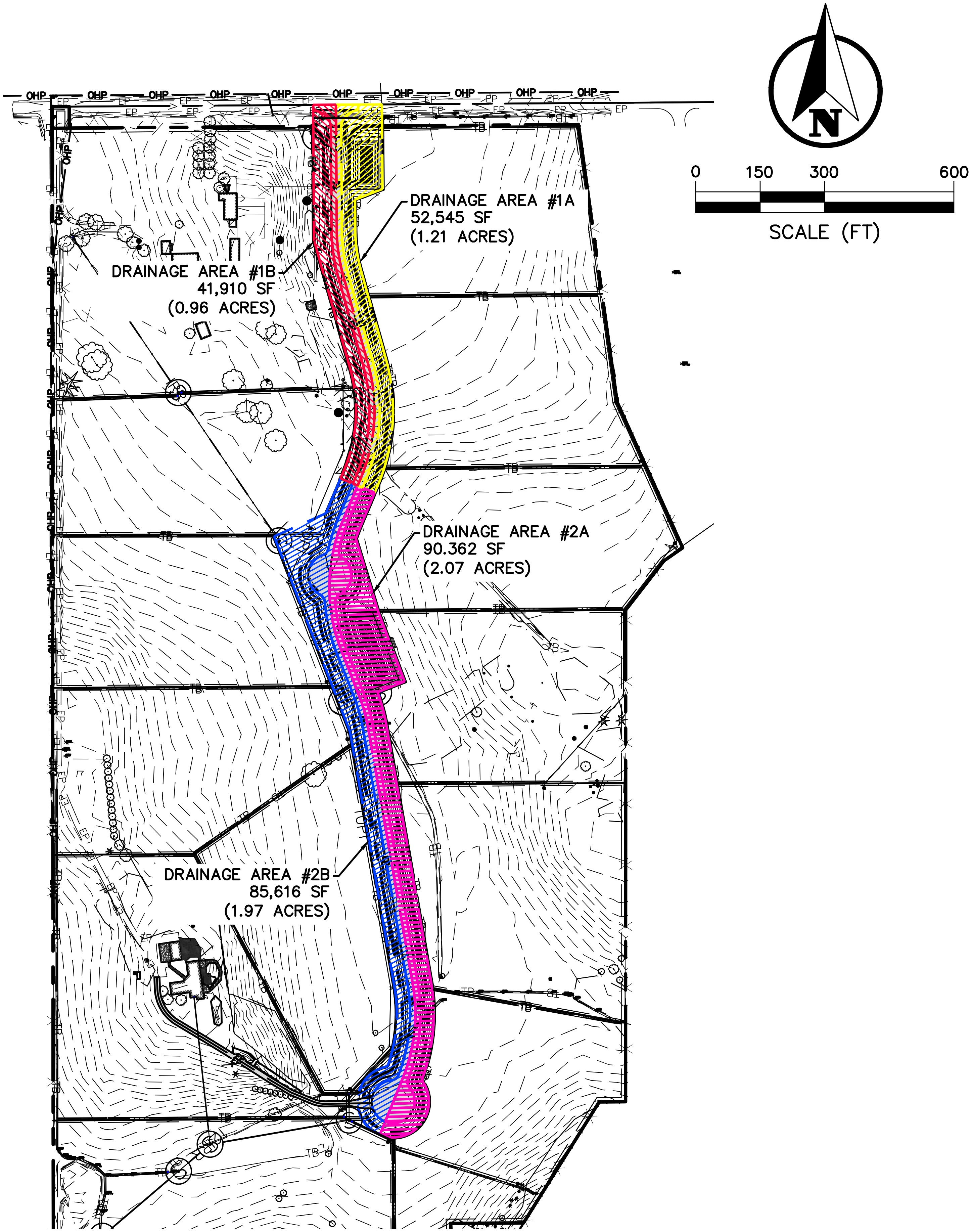
Identify where you will dispose of removed sediment or wastes prior to cleaning the storm water system. Use shovels, trowels, or a high-suction vacuum to remove wastes. Do not clean out sediment or waste with bare hands since it may be hazardous. Place the sediment or waste in an area where it cannot be washed into a storm drain or water body.

Wear gloves if any mechanical parts or structural components are going to be handled. Wearing gloves will reduce the risk of getting cuts and abrasions as well as reducing the risk of exposure of pollutants to the skin.

The following are some possible signs of problems relating to the performance of the stormwater system and a list of potential causes and probable remedies.

Sign of Failure	Potential Cause	Probably Remedies
Water is ponding in the borrow ditches at the end of the culverts.	Debris has clogged the culverts and blocked water from entering the culvert.	Remove debris from culvert. Provide better housekeeping on landscape wastes and schedule more frequent cleaning.
Erosion where the culverts enter the swale.	High flows of stormwater runoff caused erosion of the swale.	To prevent further erosion, place fabric and cobblestone on the east side of the swale where the erosion has occurred,
Swale doesn't drain within 48 hours of a storm event.	Stormwater has carried sediments into the swale. The sediments have clogged the soils at the bottom of the swale.	Remove accumulated sediment. Scarify the bottom of the swale and replace with soil new, clean filter sand. It is recommended that a backhoe operator be used for this task.

4. SITE DRAINAGE AREAS



5. DRAINAGE CALCULATIONS FOR AREA #1A (NORTHEAST SIDE OF ARVALIS DR)

A. Find Weighted Runoff Coefficient (C)

It is assumed that the drainage area is covered by a mix of: pavement (C=0.95), landscaping (C=0.15), and rural residential lot (C=0.40). These will be used to generate a weighted runoff coefficient (C').

Surface	Area (sf)	%	C	A*C	
Pavement	11,749	22%	0.95	0.21	
Landscape	0	0%	0.15	0.00	
Rural Residential Lot	40,796	78%	0.40	0.31	
Total Area	52,545	100%	-	0.52	Weighted runoff coefficient

B. Find Time of Concentration

1. Time of Saturation (Ts)

Time of Saturation (Ts)	10 min	(see Section 3070.010.C)

2. Sheet Flow Travel Time (Tsheet)

n	Manning's roughness coefficient	0.24		See Table in 3070.010.C (dense grass)
L	Flow Length	20	ft	Distance between gravity and borrow
I	Rainfall Intensity	1	in/hr	See Section 3070.010.C
s	Slope	0.025	ft/ft	Average slope of property

Time of sheet (Tsheet) = $\dfrac{0.9333*(n*L)^{0.6}}{(I)^{0.4}*s^{0.3}}$

T(sheet) 2 min

3. Pipe Flow Travel Time (Tpipe)

L	Length of pipe	0	ft	
v	Velocity in pipe	2	fps	Assumed (see Section 3070.010.C)

Tpipe = L/v 0 sec

Tpipe 0.0 min

4. Open Channel Flow Travel Time (Tchannel)

Ss	Stationing for start of channel	19+02	ft	High Point
Se	Stationing for end of channel	11+99	ft	Low Point
L	Length = |Ss-Se|	703	ft	Absolute value of travel distance
v	Velocity in channel	1.5	fps	Assumed (see Section 3070.010.C)

Tchannel = L/v 469 sec

Tchannel 8 min

5. Find Time of Concentration (T_c)

Time of concentration (Tc) is the sum of: the time of saturation; sheet flow travel time; pipe flow travel time; and open channel flow.

Tc = Ts + Tsheet + Tpipe + Tchannel 20 min

C. Find Peak Runoff for Time of Concentration (25-yr event for inlet, pipe sizing)

In accordance with Section 3070.010, the primary conveyance system shall be designed for the 25-yr storm event, and secondary conveyance systems designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.52		See above
I	Intensity	1.6	in/hr	See Appendix A.2 (25-yr, 20-min)
A	Drainage Area	1.21	acres	See Page 6
Qp	Peak Runoff = C*I*A	1.01	cfs	

D. Find Size of Culvert Needed

The size of the culvert entering the swale will be calculated using the peak discharge calculated above.

D	Pipe Diameter	12	in	
A	Pipe flow area = pi * D^2 / 4 =	0.79	ft^2	
n	Roughness coefficient =	0.024		CMP
R	Hydraulic Radius = D/4	0.250	feet	
s	Slope =	5.12%		Pipe from west borrow ditch to swale

Qc	Flow = [1.49 / n * A * R^2/3 * s^0.5]			
Qc	Flow Capacity =	4.38	cfs	
Qp	Peak Runoff	1.01	cfs	See above
	Flow (Qc) > Peak Runoff (Qp)?	**YES**		

E. Find Peak Runoff for Time of Concentration (100-yr event for retention basin)

In accordance with Section 3070.010, the detention system shall be designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.52		See above
I	Intensity	2.2	in/hr	See Appendix A.2 (100-yr, 20-min)
A	Drainage Area	1.21	acres	See Page 6
Qp	Peak Runoff = C*I*A	1.39	cfs	

F. Find Runoff Volume using Time of Concentration

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	1.39	cfs	For 100-yr, Tc storm
Tc	Time of concentration	20	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		2,223	cf	

G. Find Runoff Volume using 1-hr Event

In accordance with Section 3070.010.D, the volume of the 60 minute storm event shall calculated.

Using the Rational Method (Qp = CIA) for the 60-min event

C	Runoff Coefficient	0.52		See above
I	Intensity	1.0	in/hr	See Appendix A.2 (100-yr, 60-min)
A	Drainage Area	1.21	acres	See Page 6
Qp	Peak Runoff = C*I*A	0.63	cfs	

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	0.63	cfs	See above
Tc	Time of concentration	60	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		3,032	cf	

H. Compare which Volume is Greater

In accordance with Section 3070.040, borrow ditches shall be designed to convey the peak flow with or the 60-minute storm shall be used for storage.

Vt	Volume (time of concentration)	2,223	cf	See above
V1	Volume (60 min)	3,032	cf	See above
Vd	Largest volume	3,032	cf	This will be used for storage

I. Check Velocity of Runoff in Borrow Ditch using open channel manning's equation

Find the amount of drainage area and associate peak flow for the areas to evaluate for velocity in borrow ditch

A	Drainage Area	1.21	acres	See Page 6	
A1	Area	1.21	acres		
	Percentage of Area	1.00			
Qp	Peak flow in entire area	1.01	cfs	See Section C above	
Q1	Peak flow through STA 23+75	1.01	cfs		
		Triangle			
d	Depth	0.55	ft	Assumed Adjusted to match peak flow	
Z	Side Slope	3		Average of 2:1 on lot and 4:1 on street	
n	Roughness coefficient (n) =	0.035		Assumed	
S	Ditch Slope (S) =	0.47%		Slope of roadway	
ϴ	Angle (ϴ) = arctan(d/ss)	18.43	degrees		
A	Area (A) = $d^2/\tan\Theta$	0.91	ft^2		
R	Hydraulic Radius (R) = (d*cosϴ)/2	0.26	ft		
v	Velocity = $[(1.49/n)*A*R^{2/3}*S^{1/2}]$	1.19	ft/s	Velocity less than 2?	**YES**
Qc	Calculated Capacity = v*A	1.08	cfs		
Q1	Peak flow through STA 23+75	1.01	cfs		
	Flow (Qc) > Peak Runoff (Q)?	**YES**			

J. Find Size of and Type of Culvert Needed in Front of Homes

Since the flowrate in the borrow ditch does not exceed 2.5 cfs, a standard 12" culvert in front of each home may be used.

8. DRAINAGE CALCULATIONS FOR AREA #1B (NORTHWEST SIDE OF ARVALIS DR)

A. Find Weighted Runoff Coefficient (C)

It is assumed that the drainage area is covered by a mix of: pavement (C=0.95), landscaping (C=0.15), and rural residential lot (C=0.40). These will be used to generate a weighted runoff coefficient (C').

Surface	Area (sf)	%	C	A*C	
Pavement	11,702	28%	0.95	0.27	
Landscape	0	0%	0.15	0.00	
Rural Residential Lot	30,208	72%	0.40	0.29	
Total Area	41,910	100%	-	0.55	Weighted runoff coefficient

B. Find Time of Concentration

1. Time of Saturation (Ts)

	Time of Saturation (Ts)	10 min	(see Section 3070.010.C)

2. Sheet Flow Travel Time (Tsheet)

n	Manning's roughness coefficient	0.24	See Table in 3070.010.C (dense grass)
L	Flow Length	20 ft	Distance between gravity and borrow
I	Rainfall Intensity	1 in/hr	See Section 3070.010.C
s	Slope	0.020 ft/ft	Average slope of property

Time of sheet (Tsheet) = $\dfrac{0.9333*(n*L)^{0.6}}{(I)^{0.4}*s^{0.3}}$

T(sheet) 2 min

3. Pipe Flow Travel Time (Tpipe)

L	Length of pipe	0 ft	
v	Velocity in pipe	2 fps	Assumed (see Section 3070.010.C)

Tpipe = L/v 0 sec
Tpipe 0.0 min

4. Open Channel Flow Travel Time (Tchannel)

Ss	Stationing for start of channel	19+02 ft	High Point
Se	Stationing for end of channel	11+99 ft	Low Point
L	Length = |Ss-Se|	703 ft	Absolute value of travel distance
v	Velocity in channel	1.5 fps	Assumed (see Section 3070.010.C)

Tchannel = L/v 469 sec
Tchannel 8 min

5. Find Time of Concentration (T_c)

Time of concentration (Tc) is the sum of: the time of saturation; sheet flow travel time; pipe flow travel time; and open channel flow.

Tc = Ts + Tsheet + Tpipe + Tchannel 20 min

C. Find Peak Runoff for Time of Concentration (25-yr event for inlet, pipe sizing)

In accordance with Section 3070.010, the primary conveyance system shall be designed for the 25-yr storm event, and secondary conveyance systems designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.55	See above
I	Intensity	1.6 in/hr	See Appendix A.2 (25-yr, 20-min)
A	Drainage Area	0.96 acres	See Page 6
Qp	Peak Runoff = C*I*A	0.85 cfs	

D. Find Size of Culvert Needed

The size of the culvert entering the swale will be calculated using the peak discharge calculated above.

D	Pipe Diameter	18 in	
A	Pipe flow area = pi * D^2 / 4 =	1.77 ft^2	
n	Roughness coefficient =	0.024	CMP
R	Hydraulic Radius = D/4	0.375 feet	
s	Slope =	2.40%	Pipe under roadway

Qc	Flow = [1.49 / n * A * R^2/3 * s^0.5]		
Qc	Flow Capacity =	8.84 cfs	
Qp	Peak Runoff	0.85 cfs	See above
	Flow (Qc) > Peak Runoff (Qp)?	**YES**	

E. Find Peak Runoff for Time of Concentration (100-yr event for retention basin)

In accordance with Section 3070.010, the detention system shall be designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.55	See above
I	Intensity	2.2 in/hr	See Appendix A.2 (100-yr, 20-min)
A	Drainage Area	0.96 acres	See Page 6
Qp	Peak Runoff = C*I*A	1.17 cfs	

F. Find Runoff Volume using Time of Concentration

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	1.17 cfs	For 100-yr, Tc storm
Tc	Time of concentration	20 min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		1,891 cf	

G. Find Runoff Volume using 1-hr Event

In accordance with Section 3070.010.D, the volume of the 60 minute storm event shall calculated.

Using the Rational Method (Qp = CIA) for the 60-min event

C	Runoff Coefficient	0.55		See above
I	Intensity	1.0	in/hr	See Appendix A.2 (100-yr, 60-min)
A	Drainage Area	0.96	acres	See Page 6
Qp	Peak Runoff = C*I*A	0.53	cfs	

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	0.53	cfs	See above
Tc	Time of concentration	60	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		2,560	cf	

H. Compare which Volume is Greater

In accordance with Section 3070.040, borrow ditches shall be designed to convey the peak flow with or the 60-minute storm shall be used for storage.

Vt	Volume (time of concentration)	1,891	cf	See above
V1	Volume (60 min)	2,560	cf	See above
Vd	Largest volume	2,560	cf	This will be used for storage

I. Check Velocity of Runoff in Borrow Ditch using open channel manning's equation

Find the amount of drainage area and associate peak flow for the areas to evaluate for velocity in borrow ditch

A	Drainage Area	0.96	acres	See Page 6	
A1	Area	0.96	acres		
	Percentage of Area	1.00			
Qp	Peak flow in entire area	0.85	cfs	See Section C above	
Q1	Peak flow through STA 14+76	0.85	cfs		
		Triangle			
d	Depth	0.51	ft	Assumed Adjusted to match peak flow	
Z	Side Slope	3		Average of 2:1 on lot and 4:1 on street	
n	Roughness coefficient (n) =	0.035		Assumed	
S	Ditch Slope (S) =	0.47%		Slope of roadway	
Θ	Angle (Θ) = arctan(d/ss)	18.43	degrees		
A	Area (A) = $d^2/\tan\Theta$	0.78	ft^2		
R	Hydraulic Radius (R) = (d*cosΘ)/2	0.24	ft		
v	Velocity = $[(1.49/n)*A*R^{2/3}*S^{1/2}]$	1.13	ft/s	Velocity less than 2?	**YES**
Qc	Calculated Capacity = v*A	0.88	cfs		
Q1	Peak flow through STA 14+76	0.85	cfs		
	Flow (Qc) > Peak Runoff (Q)?	**YES**			

J. Find Size of and Type of Culvert Needed in Front of Homes

Since the flowrate in the borrow ditch does not exceed 2.5 cfs, a standard 12" culvert in front of each home may be used.

7. SWALE SIZING FOR BASIN #1

A. Find Runoff Volume (Vr)

The runoff volume for the site will be calculated using the basins that flow into the swale.

	Basin #1A	3,032 cf	See Section 5 of drainage report
	Basin #1B	2,560 cf	See Section 6 of drainage report
Vr	Runoff Volume (sum of basins)	5,592 cf	

B. Increase Runoff by 15% to Find Required Storage Volume

Vr	Runoff Volume	5,592
Vs	Required Storage = Vr * 1.15	6,430 cf

C. Find Storage Capacity in Swale

Ab	Bottom Area of Swale	2,295	sf	See Plan
Aw	Water Area @ Design Depth	4,343	sf	See Plan
Dw	Design Water Depth	2.00	ft	See Plan

Va Storage Volume = Dw / 3 [Ab + (Ab * Aw)^0.5 + Aw]

Va	Available Storage Volume (Va)	6,530	cf	**Swale #1**

D. Check in Available Storage in Swale is Greater Than Required Storage

Va	Available Storage Volume	6,530 cf
V	Required Storage Volume	6,430 cf
	Available > Required?	YES

E. Find Time for Runoff to Infiltrate into Subsurface

Vr	Runoff Volume = Q*t	5,592	cf	
Ap	Percolation Area =	2,295	sf	Sand infiltration window
r	Percolation Rate	2	in/hr	See soils report

t	Time to Percolate = Vr/(Ap*r/12)	15	hr
	Percolation Time < 24 hr?	OK	

8. DRAINAGE CALCULATIONS FOR AREA #1A (SOUTHEAST SIDE OF ARVALIS DR)

A. Find Weighted Runoff Coefficient (C)

It is assumed that the drainage area is covered by a mix of: pavement (C=0.95), landscaping (C=0.15), and rural residential lot (C=0.40). These will be used to generate a weighted runoff coefficient (C').

Surface	Area (sf)	%	C	A*C	
Pavement	23,792	26%	0.95	0.25	
Landscape	0	0%	0.15	0.00	
Rural Residential Lot	66,570	74%	0.40	0.29	
Total Area	90,362	100%	-	0.54	Weighted runoff coefficient

B. Find Time of Concentration

1. Time of Saturation (Ts)

Time of Saturation (Ts)	10	min	(see Section 3070.010.C)

2. Sheet Flow Travel Time (Tsheet)

n	Manning's roughness coefficient	0.24		See Table in 3070.010.C (dense grass)
L	Flow Length	20	ft	Distance between gravity and borrow
I	Rainfall Intensity	1	in/hr	See Section 3070.010.C
s	Slope	0.025	ft/ft	Average slope of property

Time of sheet (Tsheet) = $\dfrac{0.9333*(n*L)^{0.6}}{(I)^{0.4}*s^{0.3}}$

T(sheet) 2 min

3. Pipe Flow Travel Time (Tpipe)

L	Length of pipe	0	ft	
v	Velocity in pipe	2	fps	Assumed (see Section 3070.010.C)

Tpipe = L/v	0	sec
Tpipe	0.0	min

4. Open Channel Flow Travel Time (Tchannel)

Ss	Stationing for start of channel	34+28	ft	High Point
Se	Stationing for end of channel	23+00	ft	Low Point
L	Length = |Ss-Se|	1128	ft	Absolute value of travel distance
v	Velocity in channel	1.5	fps	Assumed (see Section 3070.010.C)

Tchannel = L/v	752	sec
Tchannel	13	min

5. Find Time of Concentration (T_c)

Time of concentration (Tc) is the sum of: the time of saturation; sheet flow travel time; pipe flow travel time; and open channel flow.

Tc = Ts + Tsheet + Tpipe + Tchannel 25 min

C. Find Peak Runoff for Time of Concentration (25-yr event for inlet, pipe sizing)

In accordance with Section 3070.010, the primary conveyance system shall be designed for the 25-yr storm event, and secondary conveyance systems designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.54		See above
I	Intensity	1.4	in/hr	See Appendix A.2 (25-yr, 25-min)
A	Drainage Area	2.07	acres	See Page 6
Qp	Peak Runoff = C*I*A	1.58	cfs	

D. Find Size of Culvert Needed

The size of the culvert entering the swale will be calculated using the peak discharge calculated above.

D	Pipe Diameter	12	in	
A	Pipe flow area = pi * D^2 / 4 =	0.79	ft^2	
n	Roughness coefficient =	0.024		CMP
R	Hydraulic Radius = D/4	0.250	feet	
s	Slope =	8.20%		Pipe from west borrow ditch to swale
Qc	Flow = [1.49 / n * A * R^2/3 * s^0.5]			
Qc	Flow Capacity =	5.54	cfs	
Qp	Peak Runoff	1.58	cfs	See above
	Flow (Qc) > Peak Runoff (Qp)?	**YES**		

E. Find Peak Runoff for Time of Concentration (100-yr event for retention basin)

In accordance with Section 3070.010, the detention system shall be designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.54		See above
I	Intensity	1.9	in/hr	See Appendix A.2 (100-yr, 25-min)
A	Drainage Area	2.07	acres	See Page 6
Qp	Peak Runoff = C*I*A	2.15	cfs	

F. Find Runoff Volume using Time of Concentration

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	2.15	cfs	For 100-yr, Tc storm
Tc	Time of concentration	25	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		4,251	cf	

G. Find Runoff Volume using 1-hr Event

In accordance with Section 3070.010.D, the volume of the 60 minute storm event shall calculated.

Using the Rational Method (Qp = CIA) for the 60-min event

C	Runoff Coefficient	0.54		See above
I	Intensity	1.0	in/hr	See Appendix A.2 (100-yr, 60-min)
A	Drainage Area	2.07	acres	See Page 6
Qp	Peak Runoff = C*I*A	1.13	cfs	

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	1.13	cfs	See above
Tc	Time of concentration	60	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		5,432	cf	

H. Compare which Volume is Greater

In accordance with Section 3070.040, borrow ditches shall be designed to convey the peak flow with or the 60-minute storm shall be used for storage.

Vt	Volume (time of concentration)	4,251	cf	See above
V1	Volume (60 min)	5,432	cf	See above
Vd	Largest volume	5,432	cf	This will be used for storage

I. Check Velocity of Runoff in Borrow Ditch using open channel manning's equation

Find the amount of drainage area and associate peak flow for the areas to evaluate for velocity in borrow ditch

A	Drainage Area	2.07	acres	See Page 6	
A1	Area	2.07	acres		
	Percentage of Area	1.00			
Qp	Peak flow in entire area	1.58	cfs	See Section C above	
Q1	Peak flow through STA 23+75	1.58	cfs		
		Triangle			
d	Depth	0.66	ft	Assumed Adjusted to match peak flow	
Z	Side Slope	3		Average of 2:1 on lot and 4:1 on street	
n	Roughness coefficient (n) =	0.035		Assumed	
S	Ditch Slope (S) =	0.40%		Slope of roadway	
ϴ	Angle (ϴ) = arctan(d/ss)	18.43	degrees		
A	Area (A) = d^2/tanϴ	1.31	ft^2		
R	Hydraulic Radius (R) = (d*cosϴ)/2	0.31	ft		
v	Velocity = [(1.49/n)*A*$R^{2/3}$*$S^{1/2}$]	1.24	ft/s	Velocity less than 2?	**YES**
Qc	Calculated Capacity = v*A	1.62	cfs		
Q1	Peak flow through STA 23+75	1.58	cfs		
	Flow (Qc) > Peak Runoff (Q)?	**YES**			

J. Find Size of and Type of Culvert Needed in Front of Homes

Since the flowrate in the borrow ditch does not exceed 2.5 cfs, a standard 12" culvert in front of each home may be used.

9. DRAINAGE CALCULATIONS FOR AREA #2B (SOUTHWEST SIDE OF ARVALIS DR)

A. Find Weighted Runoff Coefficient (C)

It is assumed that the drainage area is covered by a mix of: pavement (C=0.95), landscaping (C=0.15), and rural residential lot (C=0.40). These will be used to generate a weighted runoff coefficient (C').

Surface	Area (sf)	%	C	A*C	
Pavement	23,959	28%	0.95	0.27	
Landscape	0	0%	0.15	0.00	
Rural Residential Lot	61,657	72%	0.40	0.29	
Total Area	85,616	100%	-	0.55	Weighted runoff coefficient

B. Find Time of Concentration

1. Time of Saturation (Ts)

Time of Saturation (Ts)	10	min	(see Section 3070.010.C)

2. Sheet Flow Travel Time (Tsheet)

n	Manning's roughness coefficient	0.24		See Table in 3070.010.C (dense grass)
L	Flow Length	20	ft	Distance between gravity and borrow
I	Rainfall Intensity	1	in/hr	See Section 3070.010.C
s	Slope	0.020	ft/ft	Average slope of property

Time of sheet (Tsheet) = $\frac{0.9333*(n*L)^{0.6}}{(I)^{0.4}*s^{0.3}}$

T(sheet) 2 min

3. Pipe Flow Travel Time (Tpipe)

L	Length of pipe	0	ft	
v	Velocity in pipe	2	fps	Assumed (see Section 3070.010.C)

Tpipe = L/v 0 sec

Tpipe 0.0 min

4. Open Channel Flow Travel Time (Tchannel)

Ss	Stationing for start of channel	34+28	ft	High Point
Se	Stationing for end of channel	23+00	ft	Low Point
L1	Length = |Ss-Se|	1128	ft	Absolute value of travel distance
v	Velocity in channel	1.5	fps	Assumed (see Section 3070.010.C)

Tchannel = L/v 752 sec

Tchannel 13 min

5. Find Time of Concentration (T_c)

Time of concentration (Tc) is the sum of: the time of saturation; sheet flow travel time; pipe flow travel time; and open channel flow.

Tc = Ts + Tsheet + Tpipe + Tchannel 25 min

C. Find Peak Runoff for Time of Concentration (25-yr event for inlet, pipe sizing)

In accordance with Section 3070.010, the primary conveyance system shall be designed for the 25-yr storm event, and secondary conveyance systems designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.55		See above
I	Intensity	1.4	in/hr	See Appendix A.2 (25-yr, 25-min)
A	Drainage Area	1.97	acres	See Page 6
Qp	Peak Runoff = C*I*A	1.52	cfs	

D. Find Size of Culvert Needed

The size of the culvert entering the swale will be calculated using the peak discharge calculated above.

D	Pipe Diameter	18	in	
A	Pipe flow area = pi * D^2 / 4 =	1.77	ft^2	
n	Roughness coefficient =	0.024		CMP
R	Hydraulic Radius = D/4	0.375	feet	
s	Slope =	2.84%		Pipe under roadway

Qc	Flow = [1.49 / n * A * R^2/3 * s^0.5]			
Qc	Flow Capacity =	9.61	cfs	

Qp	Peak Runoff	1.52	cfs	See above
	Flow (Qc) > Peak Runoff (Qp)?	**YES**		

E. Find Peak Runoff for Time of Concentration (100-yr event for retention basin)

In accordance with Section 3070.010, the detention system shall be designed for the 100-yr storm event.

Using the Rational Method (Qp = CIA) for the time of concentration storm event.

C	Runoff Coefficient	0.55		See above
I	Intensity	1.9	in/hr	See Appendix A.2 (100-yr, 25-min)
A	Drainage Area	1.97	acres	See Page 6
Qp	Peak Runoff = C*I*A	2.07	cfs	

F. Find Runoff Volume using Time of Concentration

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	2.07	cfs	For 100-yr, Tc storm
Tc	Time of concentration	25	min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		4,120	cf	

G. Find Runoff Volume using 1-hr Event

In accordance with Section 3070.010.D, the volume of the 60 minute storm event shall calculated.

Using the Rational Method (Qp = CIA) for the 60-min event

C	Runoff Coefficient	0.55	See above
I	Intensity	1.0 in/hr	See Appendix A.2 (100-yr, 60-min)
A	Drainage Area	1.97 acres	See Page 6
Qp	Peak Runoff = C*I*A	1.09 cfs	

The runoff is calculated using the triangular SCS unit hydrograph as outlined in Section 3070.010.E.

Qp	Peak Runoff	1.09 cfs	See above
Tc	Time of concentration	60 min	See above
V = 1/2 * Qp (2.67 *Tc * 60)		5,232 cf	

H. Compare which Volume is Greater

In accordance with Section 3070.040, borrow ditches shall be designed to convey the peak flow with or the 60-minute storm shall be used for storage.

Vt	Volume (time of concentration)	4,120 cf	See above
V1	Volume (60 min)	5,232 cf	See above
Vd	Largest volume	5,232 cf	This will be used for storage

I. Check Velocity of Runoff in Borrow Ditch using open channel manning's equation

Find the amount of drainage area and associate peak flow for the areas to evaluate for velocity in borrow ditch

A	Drainage Area	1.97	acres	See Page 6
A1	Area	1.97	acres	
	Percentage of Area	1.00		
Qp	Peak flow in entire area	1.52	cfs	See Section C above
Q1	Peak flow through STA 14+76	1.52	cfs	
		Triangle		
d	Depth	0.65	ft	Assumed Adjusted to match peak flow
Z	Side Slope	3		Average of 2:1 on lot and 4:1 on street
n	Roughness coefficient (n) =	0.035		Assumed
S	Ditch Slope (S) =	0.40%		Slope of roadway
ϴ	Angle (ϴ) = arctan(d/ss)	18.43	degrees	
A	Area (A) = $d^2/\tan\Theta$	1.27	ft^2	
R	Hydraulic Radius (R) = (d*cosϴ)/2	0.31	ft	
v	Velocity = $[(1.49/n)*A*R^{2/3}*S^{1/2}]$	1.23	ft/s	Velocity less than 2? **YES**
Qc	Calculated Capacity = v*A	1.56	cfs	
Q1	Peak flow through STA 14+76	1.52	cfs	
	Flow (Qc) > Peak Runoff (Q)?	**YES**		

J. Find Size of and Type of Culvert Needed in Front of Homes

Since the flowrate in the borrow ditch does not exceed 2.5 cfs, a standard 12" culvert in front of each home may be used.

10. SWALE SIZING FOR BASIN #2

A. Find Runoff Volume (Vr)

The runoff volume for the site will be calculated using the basins that flow into the swale.

	Basin #2A	5,432	cf	See Section 8 of drainage report
	Basin #2B	5,232	cf	See Section 9 of drainage report
Vr	Runoff Volume (sum of basins)	10,664	cf	

B. Increase Runoff by 15% to Find Required Storage Volume

Vr	Runoff Volume	10,664	
Vs	Required Storage = Vr * 1.15	12,264	cf

C. Find Storage Capacity in Swale

Ab	Bottom Area of Swale	3,770	sf	See Plan
Aw	Water Area @ Design Depth	7,441	sf	See Plan
Dw	Design Water Depth	2.50	ft	See Plan

Va Storage Volume = Dw / 3 [Ab + (Ab * Aw)^0.5 + Aw]

Va	Available Storage Volume (Va)	13,756	cf	**Swale #4**

D. Check in Available Storage in Swale is Greater Than Required Storage

Va	Available Storage Volume	13,756	cf
V	Required Storage Volume	12,264	cf
	Available > Required?	YES	

E. Find Time for Runoff to Infiltrate into Subsurface

Vr	Runoff Volume = Q*t	10,664	cf	
Ap	Percolation Area =	3,770	sf	Sand infiltration window
r	Percolation Rate	2	in/hr	See soils report

t	Time to Percolate = Vr/(Ap*r/12)	17	hr
	Percolation Time < 24 hr?	OK	

APPENDIX A

RUNOFF COEFFICIENTS AND RAINFALL INTENSITY

D. Peak Runoff – The peak runoff rate (Q_p) when determined by the Rational Method shall use the following equation and coefficients:

$Q_p = C\ I\ A$

Where:

Q_p = Peak Runoff Rate (cubic feet per second)

C = Runoff Coefficient (See Table)

I = Rainfall Intensity (inches per hour)

A = Tributary Area (Acres)

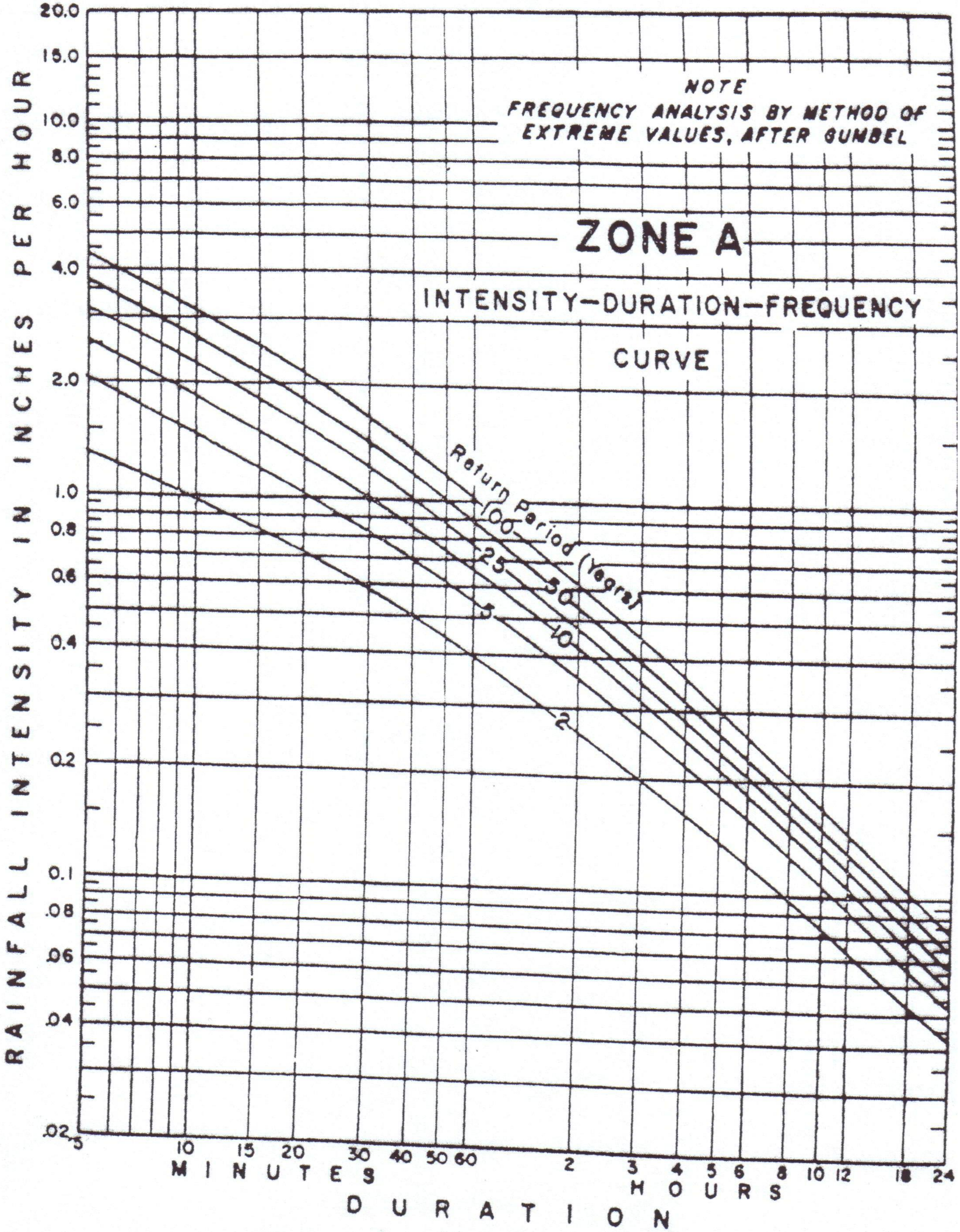
The Runoff Coefficient shall be selected from the following table for the appropriate surface type. If more than one surface type is present within the drainage area, a composite Runoff Coefficient shall be determined based on the individual area and coefficient of each surface type.

Rational Method Runoff Coefficients

Surface Description	c
Pavement	
Asphalt and Concrete	0.95
Brick	0.85
Roofs	0.95
Lawns, Sandy Soil	
Flat (<2%)	0.10
Average (2% to 7%)	0.15
Steep (>7%)	0.20
Lawns, Heavy Soil	
Flat (<2%)	0.17
Average (2% to 7%)	0.22
Steep (>7%)	0.35

Table adapted from ACSE Design and Construction of Urban Stormwater Management Systems.

The intensity shall be determined from the Idaho Transportation Department's Intensity-Duration-Frequency Curves for Zone A based on the time of concentration (duration) and frequency (return period).


NOTE
FREQUENCY ANALYSIS BY METHOD OF EXTREME VALUES, AFTER GUMBEL
ZONE A
INTENSITY—DURATION—FREQUENCY
CURVE
Return Period (Years)
100
50
25
10
5
2
RAINFALL INTENSITY IN INCHES PER HOUR
20.0
15.0
10.0
8.0
6.0
4.0
2.0
1.0
0.8
0.6
0.4
0.2
0.1
.08
.06
.04
.02
5
10
15
20
30
40
50
60
2
3
4
5
6
8
10
12
18
24
MINUTES
HOURS
DURATION

APPENDIX B

OPERATION AND MAINTENANCE FORMS

Inspection Cover Sheet

Date: ________________

Facility Name: ______________________________________

Facility Address: ____________________________________

Facility Owner: _____________________________________

Inspector Name: _____________________________________

Inspector Phone Number: ___________________________

Important Safety Information

- Never enter a confined space or trench unless you have proper Occupational Health and Safety (OSHA)training. Do not enter any confined space unless the atmosphere has been checked and proper safety equipment is worn or erected.
- Check the ventilation in the storm water system before using ignitable materials. Some storm water systems have poor ventilation and can pose a safety risk to the inspector if the vapor comes in contact with an open flame.
- Always cover or clearly mark excavated areas as potential safety risks if the areas cannot be filled in by the end of a work day.

Inspection comments:

Maintenance Report Form

Date: ________________

Facility Name: ______________________________________

Facility Address: ____________________________________

Name of Person Overseeing Maintenance: _____________

Type of System: ____________________________________

Date of Last Inspection: _____________________________

Describe maintenance activities, including type of work, completion dates, contractors, time needed to complete task, and cost.

OM-2 Infiltration

Stormwater system feature	✓	Are any of these conditions present?	Problem	Recommendation
General		standing water is present 24 hours after storm event	sediment buildup on bottom or sides of infiltration system	Excavate infiltration system and remove excess sediment. Dispose of sediment properly. An engineer or geotechnical consultant should examine drainrock and filter fabric to determine if replacement is needed. Re-install infiltration system 12" into free draining material.
		standing water is present 24 hours after storm event	infiltration system incorrectly constructed	Excavate infiltration system and re-install infiltration system 12" into free draining material. If good free draining material is not accessible, contact the design engineer to see if a more appropriate drainage system can be installed.
		offensive odor, color, or sludge is present	unknown or uncharacteristic substance	Remove substance and eliminate its source. If you do not know if the substance is hazardous, either take a sample or contact a qualified hazardous waste consultant for more information.
		propane, oil, or gasoline odor or puddle is present	accumulation of petroleum products	Contact a qualified hazardous waste consultant for information on proper treatment and disposal of petroleum products.
		excessive debris, sediment, and oil buildup is present	pretreatment system not working properly	Clean out accumulated debris in pretreatment system and dispose of properly
Inlet/outlet pipes		standing water is present 24 hours after storm event	clogged pipes	Clean out sediment and debris from pipes. See OM-10, Pipes, for more information

OM-10 Pipes

Stormwater system feature	✓	Are any of these conditions present?	Problem	Recommendation
General		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. You can use a high pressure hose, vacuum suction, or other appropriate cleaning method. Contact the design engineer for information on appropriate cleaning methods for your type of drainage system.
		vegetation is impeding water flow	overgrown vegetation	Clean out sediment and trash from pipe. You can use a high pressure hose, vacuum suction, or other appropriate cleaning method. Contact the design engineer for infomation on appropriate cleaning methods for your type of drainage system.
		pipe is rusted; protected 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.

APPENDIX C

SOILS REPORT

NATURAL RESOURCE SOLUTIONS, LLC

Consulting, Soil Evaluations & Data Collection

March 23, 2021

HARLEY R. NOE
Phone: 208.850.4926
Fax: 208.939-8602

Lance Warnick, PE
Aspen Engineers
1619 N. Linder Road
Suite 110
Kuna, ID 83634

RE: Soil evaluation for storm water facilities

Today I observed soils at two locations on the Red Tail #3 project at 3901 and 4001 East Lewis Lane in Nampa. Attached are detailed profile descriptions of those test pits and a Google Earth based map showing the location of the excavations. You requested soil conditions present and suitability of the materials for stormwater systems.

SOIL CONDITIONS

The soils in both holes have moderately fine silty clay loams and loams in the surface layer 12 to 23 inches deep. Silt loams, loams and fine sandy loams are present in the subsoil from 3.5 to 4.5 feet below ground level. Test pit 4-21 has silt loams to the bottom of the excavation depth at 13 feet. At test pit 14-21 a moderately cemented hardpan was observed between 51 and 71 inches deep which dug with some resistance. Below 71 inches to 109 inches was a second, weaker hardpan that could be broken with the hands and fingers. Silt loams and sandy loams are present in the deep substratum below 65 an 109 inches in the two test pits respectively.

STORMWATER SYSTEM

Permeability rates are provided for each horizon shown on the descriptions. Beneath the topsoil and throughout the profile, permeability rates are mostly between 1 to 4 inches per hour. The hardpan in test pit 14-21 has restricted permeability. That layer should be broken out and either removed or replaced back in the trench. Other than the pan layer, all soils are free-drained. It appears that the deep substratum loams and silt loams will be the most likely receiving soil for storm drainage swales or seepage beds. If more rapid permeability is needed, all soils above 8 feet should be removed and replaced with filter sand.

CONCLUSIONS

These soils should perform well for the projected use. As requested I collected 4 buckets of the 12 to 23 inch layer which will be delivered to the CMT Lab for R-value and compaction testing. I would predict a rather low R-value, possibly in the 10 to 15 range or less. The only profile restriction is the hardpan in the 14-21 test pit. Depending on variation of soils across the landscape that restriction can be removed if it appears to be a problem. These hardpans are moderately expressed, but dig without difficulty with larger excavating equipment.

Should you have questions or need anything additional, please contact me.

transmitted via e-mail

HARLEY R. NOE
Professional Soil Scientist

cc w/attachments: Audrey Corsberg, Corsberg Land, LLC, 3901 E. Lewis Lane,
Nampa, ID 83686

Natural Resource Solutions, LLC

Storm Drain Test Hole Description & Evaluation

Date Of Evaluation: 3/23/2021 Evaluated by: **Harley Noe,** Professional Soil Scientist

Requested By: Corsberg Land, LLC (Audrey Corsberg)

Address: 3901 E. Lewis Lane Phone: (208) 250-9809

City: Nampa State: Idaho Zip: 83686

Legal Desc: part of the west 1/2 of the NE 1/4 Section 13, Township 2 North, Range 2 West, Boise Meridian
Canyon County, Idaho

General Desc: 1/2 mile west of Happy Valley Road to south.

Hole Number & Location: ***TP4-21 43.517136 latitude; -116.520599 longitude***

Depth (inches)	Moist Munsell Color	USDA Texture	Clay %	Roots	Mottles	Est. Permeability (in/hr)	Comments
0 to 12	10YR 3/3	silt loam	24 to 26	fine; common medium	none	0.5 to 1	friable moist; approaches silty clay loam
12 to 24	10YR 5/4	loam	10 to 12	common very fine, fine & medium	none	1 to 2	very friable moist; weak subangular blocky structure
24 to 46	10YR 6/4	loam	10 to 12	few very fine & fine	none	1 to 2	very friable moist; approaches fine sandy loam
46 to 65	10YR 4/4	silt loam	13 to 15	few very fine & fine	none	1 to 2	approaches loam; 20% 3" diameter rounded basalt fragments
65 to 156+	7.5YR 5/3	silt loam	17 to 18	none	none	1 to 2	40% 3" to 12" basalt fragments

General Notes: Slope 1 to 3 percent. There are pockets in the bottom horizon that are 3 feet in diameter that do not have basalt fragments. All layers below 46 inches are very dry and loose and act like flour. No wetness features present in profile to more than 13 feet.

Hole Number & Location: ***TP14-21 43.513891 latitude; -116.519833 longitude***

Depth (inches)	Moist Munsell Color	USDA Texture	Clay %	Roots	Mottles	Est. Permeability (in/hr)	Comments
0 to 13	10YR 4/3	silty clay loam	28 to 30	many very fine & fine; few medium	none	0.2 to 0.6	friable moist; strong, fine granular structure
13 to 23	10YR 4/4	silt loam	18 to 20	common very fine & fine	none	1 to 2	subangular blocky structure; approaches fine & very fine sandy loam
23 to 40	10YR 5/4	fine sandy loam	12 to 14	few very fine & fine	none	2 to 4	moderately dense in place; friable moist
40 to 57	10YR 3/4	sandy loam	12 to 14	few very fine & fine	none	2 to 6	moderately dense in place; firm moist
57 to 71	10YR 6/2	moderately cemented hardpan	na	none	none	0.5 to 1	cannot be broken with the hands; fractured
71 to 109	10YR 4/3	weakly cemented hardpan	na	none	none	1 to 2	breaks and crumbles with fingers
109 to 156+	10YR 4/3	sandy loam	16 to 18	none	none	2 to 4	slightly dense in place; loose when broken

General Notes: Slope 0 to 2 percent. No wetness features present in the profile. Fine sands are dominant size. All layers are free drained. ***Samples were taken from the 13 to 23 layer and submitted to CMT Labs for R-value and Proctor testing.***

Red Tail #3
storm system test pits 3-23-21
Legend
boundary
TP
E Lewis Ln
TP 14
Aztlan Dr
Tiercel Dr
TP 4
Happy Valley Rd
N
1000 ft
Google Earth
Image © 2021 Maxar Technologies

APPENDIX D

R-VALUE TESTING

American Geotechnics
5260 Chinden Blvd.
Boise, Idaho 83714
Phone:(208) 658-8700
Fax: (208) 658-8703

Report To:	CMT Engineering Laboratories	Report Date:	3/29/2021
Project:	Red tail #3	Date Sampled:	March 2021
Project No.:	00783.343	Date Received:	3/18/2021
Sample ID:	Onsite	Tested By:	TT
Soil Description:	Sandy Silt (ML)	Lab Number:	21-0127

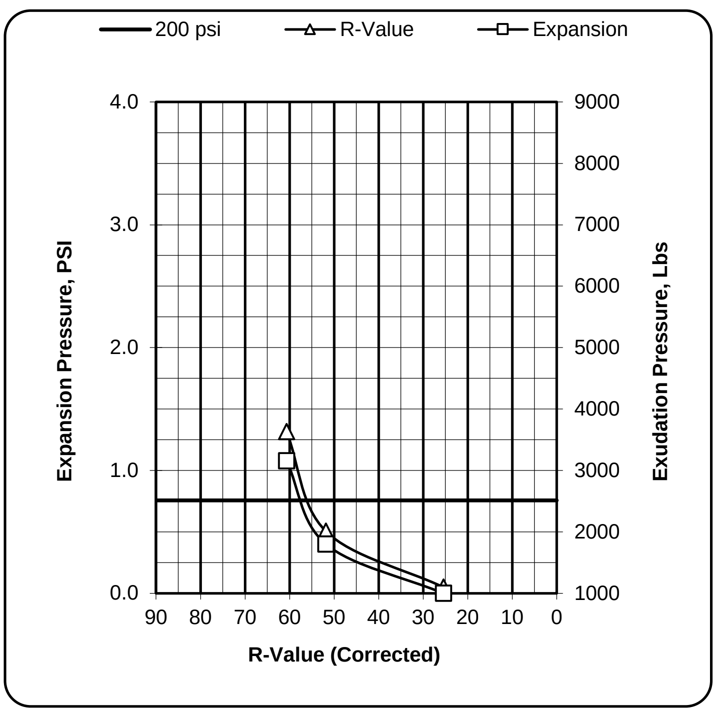
R-VALUE

IDAHO T-8

	Point 1	Point 2	Point 3
Drainage Description	Slight	Slight	Slight
Dry Density, PCF	95.0	95.5	95.9
Moisture Content, %	25.1	24.1	23.3
Exudation, PSI	88	160	289
R-Value (Corrected)	25	52	61
Expansion, PSI	0.00	0.40	1.08

R-Value @ 200 PSI
Exudation Pressure

56



Gradation: AASHTO T-11, T-27		
Screen Sizes	% Passing As Received	% Passing As Tested
4"		
3"		
2"		
1"		
3/4"		
1/2"		
3/8"		
No. 4	100	100
No. 8		
No. 16		
No. 30		
No. 50		
No. 100		
No. 200		

* This report covers only material as represented by this sample and does not necessarily cover all soils from this layer or source.

Reviewed By: *Holly Lockett*

CIVIL IMPROVEMENT DRAWINGS FOR

RED TAIL ESTATES SUBDIVISION NO. 3

LOCATED IN A PORTION OF THE W 1/2 OF THE NE 1/4
OF SECTION 13, T.2N, R.2W, BOISE MERIDIAN
CITY OF NAMPA, CANYON COUNTY, IDAHO

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), THE ACCHD STANDARDS MANUAL AND NAMPA HIGHWAY DISTRICT #1 SUPPLEMENTALS.
2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL COMPLY WITH IDAHO CODE CHAPTER 22, TITLE 55 REGARDING UNDERGROUND FACILITIES DAMAGE PREVENTION. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. THEY AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. CALL DIGLINE, INC., 48 HOURS BEFORE COMMENCING ANY UNDERGROUND WORK AT 811 OR 208–342–1585.
3. PRIOR TO BEGINNING CONSTRUCTION OF PUBLIC STREET AND UTILITY IMPROVEMENTS, THE CONTRACTOR AND SUBCONTRACTORS SHALL ATTEND A PRE–CONSTRUCTION MEETING NAMPA HIGHWAY DISTRICT NO. 1.
4. CONTRACTOR SHALL REPAVE TO EXISTING GRADES ANY PAVED AREAS DISTURBED BY CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COMPACTION TESTS FOR SUBGRADE, PAVEMENT, ETC.
6. ALL NON–COMPACTABLE MATERIALS SHALL BE REMOVED PRIOR TO COMPACTION OF SUBGRADE.
7. THE CONTRACTOR SHALL OBTAIN A RIGHT–OF–WAY PERMIT FROM NAMPA HIGHWAY DISTRICT NO. 1 PRIOR TO CONSTRUCTING IMPROVEMENTS LOCATED WITHIN THE RIGHT–OF–WAY.
8. CONTRACTOR SHALL OBTAIN ALL APPLICABLE CONSTRUCTION PERMITS.
9. TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY COMPASS LAND SURVEYING (JUNE 2018).
10. PROPOSED AND EXISTING ELEVATIONS ARE BASED UPON INFORMATION OBTAINED FROM THE TOPOGRAPHIC SURVEY.
11. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF THE TEMPORARY BENCHMARKS, AND PAVEMENT MATCH LOCATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCY PRIOR TO CONSTRUCTION.
12. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
13. ALL OWNERS OR CONTRACTORS INTENDING TO DISTURB ONE ACRE OR MORE OF GROUND AS PART OF CONSTRUCTION ACTIVITIES SHALL DO THE FOLLOWING:
    - A. FILE A NOTICE OF INTENT (NOI) WITH EPA'S CONSTRUCTION GENERAL PERMIT (CGP).
    - B. PREPARE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
    - C. INSTALL SIGNAGE PER THE CGP.
    - D. MAINTAIN ON–SITE COPIES OF THE NOI, CGP, AND SWPPP.
    - E. COMPLY WITH REQUIREMENTS OF CGP AND SWPPP INCLUDING DOCUMENTING THAT ALL INSPECTIONS AND MONITORING HAVE BEEN PERFORMED.
    - F. FILE A NOTICE OF TERMINATION (NOT) WHEN ON–SITE WORK IS COMPLETE AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE AND FUNCTIONING.
14. ALL CONTRACTORS WORKING WITHIN THE PROJECT BOUNDARIES ARE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ANY JURISDICTIONAL BODY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES, AND SAFETY WITHIN AND AROUND THE CONSTRUCTION AREA.
15. RETAIN AND PROTECT ALL IRRIGATION AND DRAINAGE PIPE CROSSINGS. IF NECESSARY, THE PIPE WILL BE REPLACED BY THE CONTRACTOR.
16. ALL UNDERGROUND UTILITIES AND SERVICE LINES SHALL BE INSTALLED AND TESTED PRIOR TO STREET CONSTRUCTION AND ON–SITE PAVING.
17. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES ON ANY OFFSITE PROPERTIES WITH PROPERTY OWNERS PRIOR TO CONSTRUCTION.
18. ALL CONTRACTORS PERFORMING ANY WORK DEPICTED ON THESE PLANS SHALL HAVE IN THEIR POSSESSION AND ON THE JOB SITE AN APPROVED SET OF PLANS WHICH HAVE BEEN STAMPED AND SIGNED ON THE FRONT SHEET BY THE CANYON COUNTY AND NAMPA HIGHWAY DISTRICT NO. 1.
19. ANY CHANGE FROM THE PLANS SHALL BE APPROVED BY THE ENGINEER OF RECORD, CANYON COUNTY, AND NAMPA HIGHWAY DISTRICT NO. 1.
20. PEDESTRIAN ACCESS ROUTES AND FACILITIES MUST COMPLY WITH LOCAL, STATE AND FEDERAL GUIDELINES / REQUIREMENTS.

STREET NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), THE ACCHD STANDARDS MANUAL AND NAMPA HIGHWAY DISTRICT #1 SUPPLEMENTALS.
2. ALL CONTRACTORS, SUB–CONTRACTORS, AND UTILITY CONTRACTORS SHALL ATTEND A PRE–CONSTRUCTION CONFERENCE A MINIMUM OF TWO (2) DAYS PRIOR TO COMMENCING ANY CONSTRUCTION ON THE PROJECT.
3. ONLY PLAN SETS STAMPED "APPROVED FOR CONSTRUCTION" AND SIGNED BY THE ENGINEER SHALL BE USED FOR PROJECT CONSTRUCTION. USE OF PLANS NOT STAMPED "APPROVED FOR CONSTRUCTION" SHALL BE GROUNDS FOR THE ISSUANCE OF A STOP WORK ORDER.
4. ALL MATERIALS FURNISHED ON OR FOR THE PROJECT SHALL MEET THE MINIMUM REQUIREMENTS OF THE APPROVING AGENCY OR AS SET FORTH IN THE PROJECT PLANS AND SPECIFICATIONS, WHICHEVER IS MORE RESTRICTIVE CONTRACTOR SHALL FURNISH PROOF THE ALL MATERIALS MEET THE REQUIREMENTS AT THE REQUEST OF THE OWNER OR ENGINEER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND PAYING FOR ALL COSTS ASSOCIATED WITH ALL TESTING REQUIRED BY THE PROJECT SPECIFICATIONS. ALL TESTS SHALL BE PERFORMED BY A CERTIFIED TESTING LABORATORY AND CERTIFIED TEST RESULTS SHALL BE SUBMITTED TO THE OWNER ENGINEER. WORK PERFORMED WITHOUT CERTIFIED TEST RESULTS SHALL NOT BE ACCEPTED.
6. PLANT MIX PAVEMENT SHALL BE SP3 WITH A NOMINAL MAXIMUM AGGREGATE SIZE OF 3/4". PG 64–28 (PERFORMANCE GRADED ASPHALT BINDER) SHALL BE USED. A MINIMUM OF 0.5% ANTI–STRIPPING ADDITIVE IS SPECIFIED.
7. PROFILE THE SURFACE FOLLOWING ROADWAYS IN ACCORDANCE WITH IDAHO T–140: NONE.
8. ALL UNDERGROUND UTILITIES AND SERVICE LINES SHALL BE INSTALLED AND TESTED PRIOR TO STREET CONSTRUCTION.
9. WHEN DISCREPANCIES OCCUR BETWEEN PLANS AND SPECIFICATIONS THE CONTRACTORS SHALL IMMEDIATELY NOTIFY THE ENGINEER. UNTIMELY NOTIFICATION SHALL NEGATE ANY CONTRACTOR'S CLAIM FOR ADDITIONAL COMPENSATION.
10. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A 3RD PARTY FIRM FOR COMPACTION TEST SERVICES. COMPACTION TESTS SHALL BE REQUIRED IN THE BACKFILL ABOVE THE PIPE ZONE, WITHIN THE PUBLIC RIGHT–OF–WAY, IN ACCORDANCE WITH ISPWC AND RESULTS SHALL BE SUBMITTED TO CANYON HIGHWAY DISTRICT NO. 4 AND THE ENGINEER OF RECORD PRIOR TO FINAL ACCEPTANCE. THE CONTRACTOR IS RESPONSIBLE FOR COMPACTION TESTS. ALL COSTS OF RETESTING FOR PREVIOUSLY FAILED TESTS SHALL BE BACKCHARGED TO THE CONTRACTORS BY THE OWNER.
11. ALL COSTS TO THE CONTRACTOR INCURRED IN CORRECTING DEFICIENT WORK SHALL BE BORNE BY THE CONTRACTOR. FAILURE TO CORRECT SUCH WORK WILL BE CAUSE FOR A STOP WORK ORDER AND POSSIBLE TERMINATION.
12. STORM DRAIN CONSTRUCTION SHALL BE PERIODICALLY OBSERVED BY DESIGN ENGINEER (SEE STORM DRAIN NOTES).
13. OVER EXCAVATION AND ADDITIONAL GRANULAR BACKFILL MAY BE REQUIRED IN UNSUITABLE MATERIAL AREAS WHICH ARE TO BE DETERMINED BY THE ENGINEER OF RECORD.
14. ROAD NAME SIGNS SHALL BE INSTALLED BY THE DEVELOPER. ROAD SIGNS SHALL HAVE 9" WIDE BLADES, WITH 6" LETTERS AND 3" ROAD TYPE DESIGNATION. SEE SECTION 3090 OF THE HIGHWAY STANDARDS AND DEVELOPMENT PROCEDURES MANUAL FOR SIGN INSTALLATION AND SPECIFICATIONS.
15. STORM DRAINAGE FACILITIES OUTSIDE THE PUBLIC RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION OR PROPERTY OWNER ON WHICH THE STORM DRAINAGE FACILITY IS CONSTRUCTED IF NO HOMEOWNER'S ASSOCIATION EXISTS. RESPONSIBILITY FOR STORM DRAINAGE FACILITIES INCLUDE ALL MAINTENANCE BOTH ROUTINE AND NON–ROUTINE.
16. DESIGN SPEED FOR NEW STREET (ARVALIS DR) IS 25 MPH BASED HORIZONTAL AND VERTICAL CURVES. POSTED SPEED LIMIT SHALL BE 20 MPH PER NHD#1 STANDARDS.

LOW PRESSURE IRRIGATION NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), THE ACCHD STANDARDS MANUAL AND NAMPA HIGHWAY DISTRICT #1 SUPPLEMENTALS.
2. INSTALL LOCATING WIRE WITH ALL PRESSURE IRRIGATION LINES AND VALVES PER CITY STANDARDS.
3. INSTALL FINDER TAPE WITH ALL IRRIGATION MAINS PER ISPWC STANDARDS.
4. ALL IRRIGATION MAINS SHALL HAVE A MINIMUM OF 12" COVER FROM FINISHED GRADE TO TOP OF PIPE.
5. ALL MAIN PIPE SHALL BE GASKETED PVC CLASS 200, SDR 21 OR BETTER, COLOR PURPLE, AND FITTINGS SHALL BE GASKETED SLIP–ON PVC.
6. MAIN LINE ISOLATION GATE VALVE BOXES SHALL BE CAST IRON TWO (2) PIECE ADJUSTABLE WITH "IRRIGATION" PRINTED CLEARLY ON THE TOP SURFACE.

DATUM AND BENCHMARKS (SEE TOPOGRAPHIC MAP)

1. THE VERTICAL DATUM IS NAVD 88.
2. CONTACT COMPASS LAND SURVEYING FOR MARKING AND REFERENCE INFORMATION 208–442–0115.

STORM DRAIN CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD AT 208–466–8181 FOR OBSERVATION OF THE STORM DRAIN FACILITIES PRIOR TO CONSTRUCTION. MINIMUM 48 HOUR NOTICE REQUIRED.
2. NOTIFY ENGINEER FOR OBSERVATION OF BOTTOM OF FACILITY PRIOR TO ANY BACKFILL. APPROVAL IS CONTINGENT UPON OBSERVATION.
3. MINIMUM SEPARATION FROM THE BOTTOM OF THE FACILITY TO SEASONAL HIGH GROUND WATER SHALL BE A MINIMUM OF 3'. CONTACT ENGINEER FOR REVISED DRAINAGE FACILITY DESIGN IF BOTTOM OF FACILITY IS WITHIN 3' OF SEASONAL HIGH GROUNDWATER ELEVATION.
4. FACILITIES ARE DESIGNED TO RETAIN THE 100–YR, tC TO 24 HOUR STORM WITH PERCOLATION.
5. FACILITIES ARE DESIGNED TO RETAIN THE LARGEST STORAGE VOLUME CALCULATED FOR THE 100–YR STORM EVENT WITH DURATIONS RANGING FROM THE TIME OF CONCENTRATION tC (10 MINS) TO 24 HOURS AND ALLOWING FOR INFILTRATION.
6. STORM DRAINAGE FACILITIES OUTSIDE THE PUBIC RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION OR PROPERTY OWNER ON WHICH THE STORM DRAINAGE FACILITY IS CONSTRUCTED IF NO HOMEOWNER'S ASSOCIATION EXISTS. RESPONSIBILITY FOR STORM DRAINAGE FACILITIES INCLUDES ALL MAINTENANCE BOTH ROUTINE AND NON–ROUTINE.

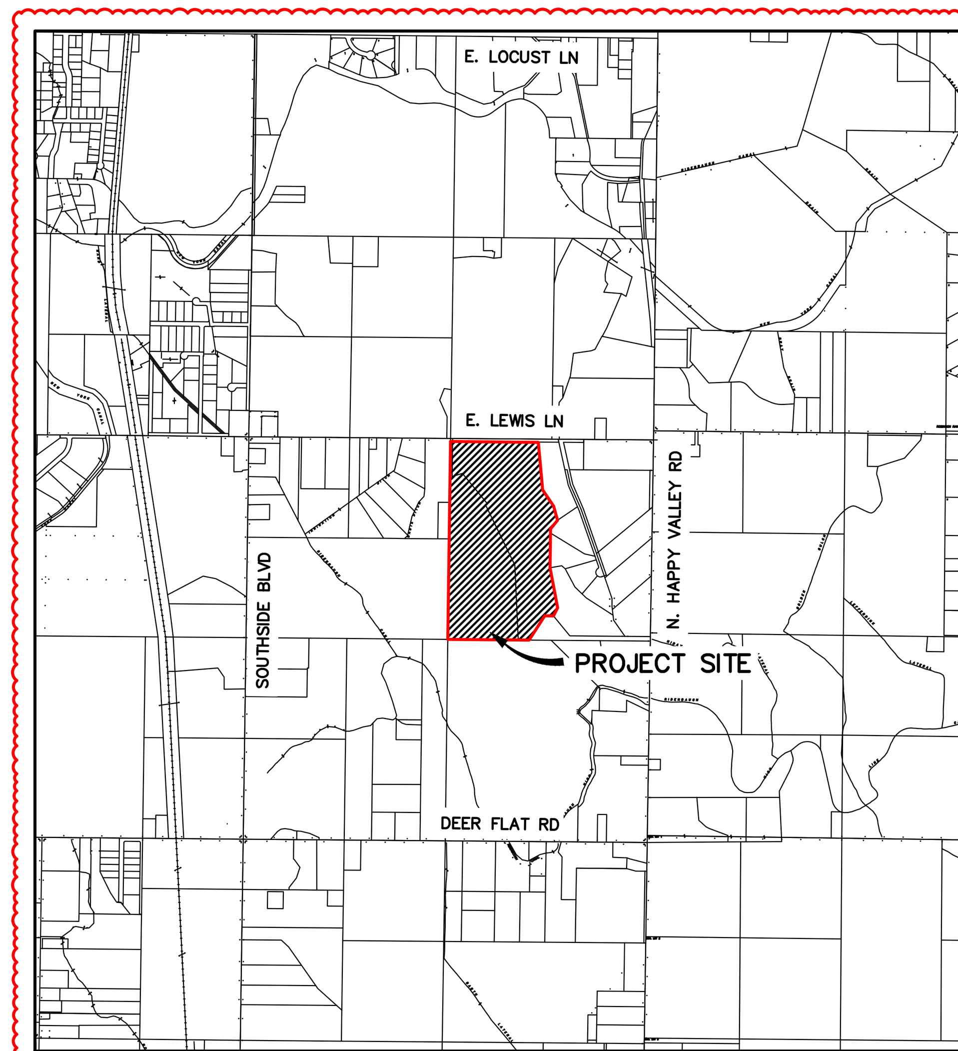
SITE INFORMATION

PROJECT:	RED TAIL ESTATES SUBDIVISION SUBDIVISION NO. 3
ADDRESS:	3901 & 4001 E. LEWIS LN NAMPA, IDAHO 83686
PARCEL NO:	R295330000 & R295331050
PARCEL SIZE:	77.63± ACRES
LEGAL:	LOCATED IN THE PORTION OF THE W 1/2 OF THE NE 1/4 OF SEC 13, T2N, R2W, BOISE MERIDIAN NAMPA, CANYON COUNTY, IDAHO

ENGINEER OF RECORD INFORMATION

ASPEN ENGINEERS, CHARTERED
1619 N. LINDER RD, SUITE 110
KUNA, IDAHO 83651

CONTACT:
LANCE WARNICK, PE
208–466–8181
lance@AspenEngineers.com



VICINITY MAP
3901 & 4001 E. LEWIS LN, NAMPA, IDAHO

0 1000 2000 4000
SCALE (FT)

811
Know what's below. Call before you dig.

LEGEND

EXISTING / PROPOSED

- PROPERTY LINE
- LOT LINE
- CENTERLINE
- SECTION LINE
- EASEMENT
- EP — EDGE OF PAVEMENT
- EG — EDGE OF GRAVEL
- G (GAS) — UNDERGROUND GAS LINE
- W — WATER LINE
- WS — WATER SERVICE LINE
- S — SEWER MAIN LINE
- SS — SEWER SERVICE LINE
- SD — STORM DRAIN LINE
- OHP — OVERHEAD POWER
- UP — UNDERGROUND POWER
- UT — UNDERGROUND TELEPHONE
- FLOW LINE
- GB — GRADE BREAK
- GC — GRADE CHANGE
- TB — TOP OF BANK
- TOE — TOE OF SLOPE
- PI — PRESSURE IRRIGATION LINE
- IRR — GRAVITY IRRIGATION LINE
- CHAIN LINK FENCE
- WOOD FENCE
- VINYL FENCE
- X — WIRE FENCE
- 2601 — CONTOUR
- SSMH — SEWER MANHOLE
- WATER BIBB/FAUCET
- CO — SEWER SERVICE MARKER
- CLEANOUT
- FIRE HYDRANT
- WATER WELL
- WATER METER
- WATER SERVICE
- WV — WATER VALVE
- BLOW–OFF ASSEMBLY & VAULT
- TEMPORARY BLOW–OFF
- PRESSURE IRRIGATION DRAIN
- PIPE END CAP
- PIPE ADAPTER
- FITTINGS W/THRUST BLOCK
- STORM MANHOLE
- STORM DRAIN CATCH BASIN
- STORM DRAIN DROP INLET
- SAND AND GREASE TRAP
- PIV — AIR RELEASE VALVE
- IRR — IRRIGATION BOX
- IRRIGATION MANHOLE
- UTILITY POLE
- POLE ANCHOR
- ELECTRICAL BOX
- LIGHT POLE
- TELEPHONE RISER
- GAS METER/MARKER
- GAS RISER
- CABLE TV RISER
- MAILBOX
- SIGN
- BARRICADE
- DECIDUOUS/CONIFER TREE
- 1 — LOT NUMBER
- DETAIL NUMBER / SHEET NUMBER
- 0.40% — GRADE & DIRECTION OF FLOW

NOTE: THIS IS A TYPICAL LINE AND SYMBOL LEGEND AND MAY NOT APPLY TO ALL PROJECTS.

ABBREVIATIONS

AC	ASPHALT ELEVATION	H	HEIGHT	ROW	RIGHT–OF–WAY
BFF	BELOW FINISH FIOOR	IE	INVERT ELEVATION	SDR	STD DIMENSION RATIO
BGS	BELOW GROUND SURFACE	L	LENGTH	STA	STATION
BOW	BACK OF WALK	LF	LINEAR FEET	STD	STANDARD
CB	CATCH BASIN	LIP	LIP OF GUTTER	TB	THRUST BLOCK
CF	CUBIC FEET	MDD	MODIFIED DRY DENSITY	TBC	TOP BACK ROLLED CURB
CON	CONCRETE ELEVATION	ME	MATCH EXISTING	TBM	TEMPORARY BENCHMARK
CFS	CUBIC FEET PER SECOND	MIN	MINIMUM	TBVC	TOP BACK VERTICAL CURB
DIA	DIAMETER	MJ	MECHANICAL JOINT	TOC	TOP OF CURB
EG	EXISTING GRADE	NTS	NOT TO SCALE	TOG	TOP OF GRATE
EP	EDGE OF PAVEMENT	PC	POINT OF CURVATURE	TOW	TOP OF WALK
FL	FLOW LINE	PRC	POINT OF REVERSE CURV	TYP	TYPICAL
FLG	FLANGE	PT	POINT OF TANGENCY	W	WIDTH
GB	GRADE BREAK	PUE	PUBLIC UTILITY EASEMENT	WALL	TOP OF RETAINING WALL
GC	GRADE CHANGE	PVI	POINT OF VERTICAL INTER		
GWT	GROUNDWATER TABLE	R	RADIUS		

CIVIL DRAWING INDEX

1. CIVIL NOTES AND LEGEND SHEET C1.1
2. CIVIL DEMOLITION PLAN C2.1
3. STORM DRAIN PLAN (1 OF 2) C3.1
4. STORM DRAIN PLAN (2 OF 2) C3.2
5. STREET PLAN AND PROFILE (1 OF 3) C4.1
6. STREET PLAN AND PROFILE (2 OF 3) C4.2
7. STREET PLAN AND PROFILE (3 OF 3) C4.3
8. STREET AND STORM DRAIN DETAILS C5.1
9. GRAVITY IRRIGATION PLAN (1 OF 4) C6.1
10. GRAVITY IRRIGATION PLAN (2 OF 4) C6.2
11. GRAVITY IRRIGATION PLAN (3 OF 4) C6.3
12. GRAVITY IRRIGATION PLAN (4 OF 4) C6.4
13. LOW PRESSURE IRRIGATION PLAN (1 OF 4) C6.5
14. LOW PRESSURE IRRIGATION PLAN (2 OF 4) C6.6
15. LOW PRESSURE IRRIGATION PLAN (3 OF 4) C6.7
16. LOW PRESSURE IRRIGATION PLAN (4 OF 4) C6.8
17. IRRIGATION DETAILS (1 OF 2) C7.1
18. IRRIGATION DETAILS (2 OF 2) C7.2

REVISIONS

C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

PROFESSIONAL ENGINEER REGISTERED 10077 01/17/2022 STATE OF IDAHO LANCE WARNICK

ASPEN ENGINEERS
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DEVELOPER

CORSBERG LAND, LLC
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3901 E. LEWIS LN
NAMPA, IDAHO 83686
PHONE: 208–250–9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN: TCW	SCALE: SHOWN
CHECKED: LBW	REVISION: D

DATE: 01/17/2021

PROJECT: 20061

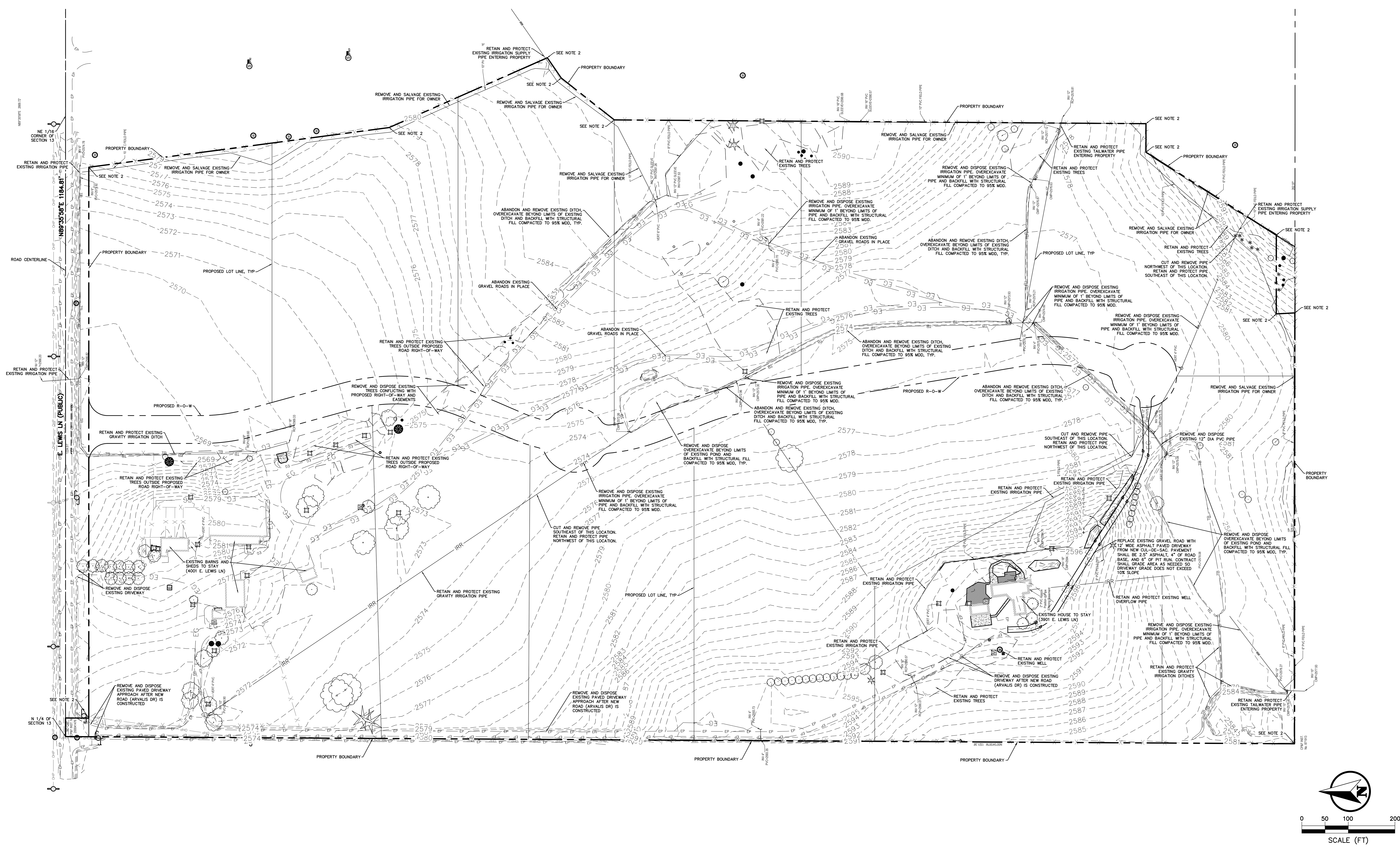
TITLE: RED TAIL ESTATES SUBDIVISION NO. 3

CIVIL NOTES AND LEGEND SHEET

SHEET: C1.1

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. EXISTING CONTOUR LINES ARE SHOWN AT INTERVAL OF 1'.
4. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE COUNTY.
5. CONTRACTOR SHALL REMOVE AND DISPOSE (OR RELOCATE AS NEEDED) ALL SITE FEATURES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS.
6. THE DEVELOPER LIVES ON THE PROPERTY AND ACTIVELY MANAGES THE EXISTING IMPROVEMENTS. THE CONTRACTOR SHALL DISCUSS DEMOLITION PLAN WITH DEVELOPER TO CONFIRM THERE ARE NO CHANGES OR ADDITIONS PRIOR TO IMPLEMENTATION.



REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

PROFESSIONAL ENGINEER 10071 01/17/2022 STATE OF IDAHO LANCE WARNICK

ASPEN ENGINEERS
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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

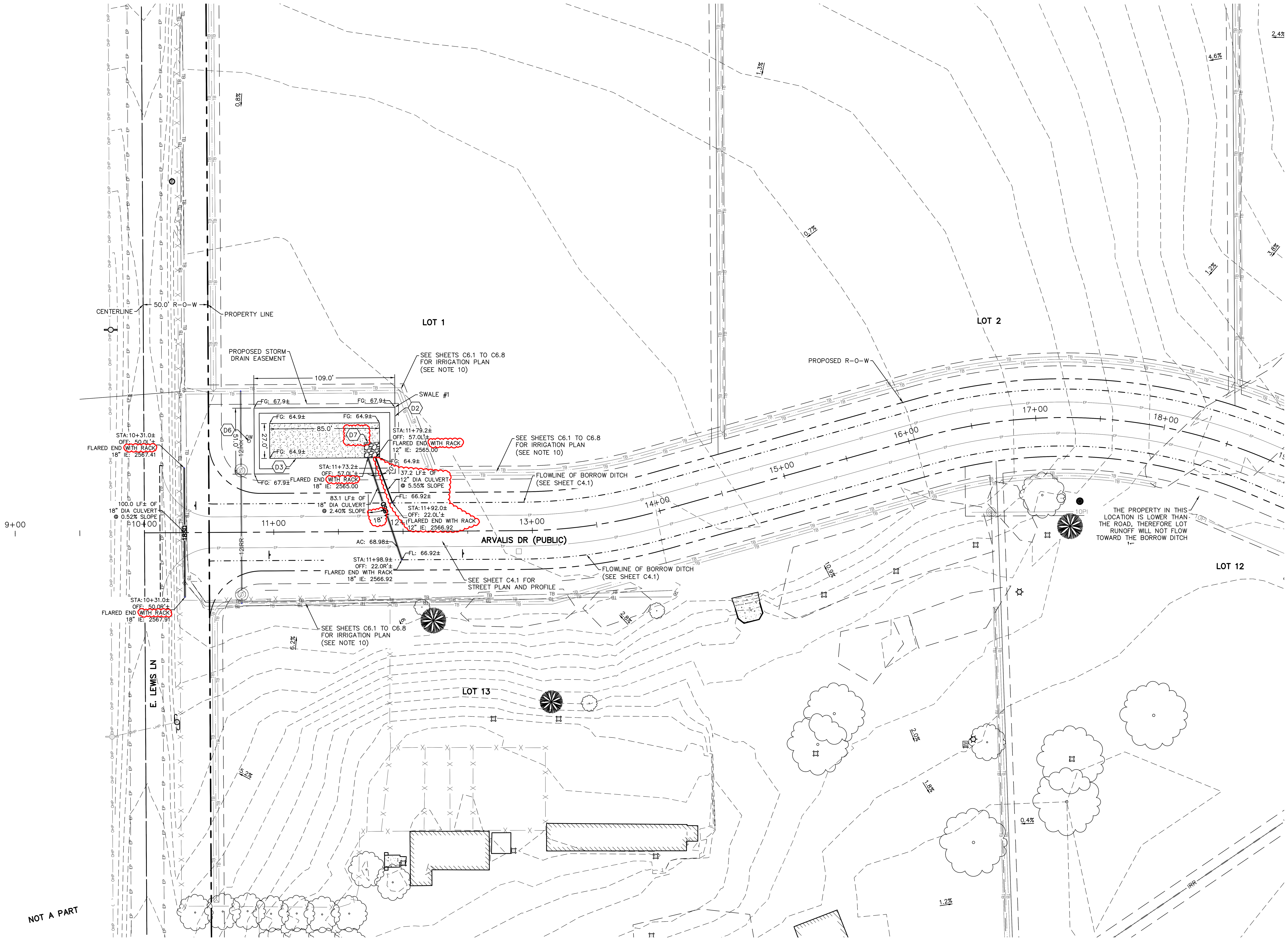
DATE
01/17/2021

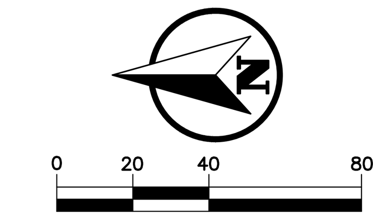
PROJECT
20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3

CIVIL DEMOLITION PLAN

SHEET
C2.1





NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
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3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 1'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. SEE SHEETS C4.1 TO C4.3 FOR STREET PLAN AND PROFILE.
6. SEE SHEET C5.1 FOR STREET DETAILS.
7. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE CITY.
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9. ALL CULVERTS SHALL BE: 14 GAGE (0.079" THICK) ALUMINIZED, POLYMER COATED OR TRENCH COATED STEEL WITH 2-2/3"x1/2" CORRUGATIONS; OR CLASS V REINFORCED CONCRETE PIPE PER ACCHD STANDARD 3070.020.
10. THIS SITE HAS GRAVITY IRRIGATION DITCHES ALONG NEARLY THE ENTIRE LENGTH OF BOTH SIDES OF THE PROPOSED ROAD WHICH WILL LIMIT THE AMOUNT OF STORMWATER RUNOFF FROM THE SUBDIVISION LOTS THAT WILL MAKE IT TO THE PROPOSED SWALES. SEE SHEETS C6.1 TO C6.4 FOR GRAVITY IRRIGATION PLAN.

KEYNOTES

D1. 6'x12' HAND PLACED 8" DIA RIP RAP OVER NON-WOVEN GEOTEXTILE AT THE END OF THE PIPE TO HELP REDUCE POTENTIAL FOR EROSION. SET TOP OF RIP RAP FLUSH WITH BOTTOM OF SWALE, QTY 2.

D2. SWALE #1
DESIGN CAPACITY: 6,530 CF±
TOP OF SWALE ELEV: 67.9±
DESIGN WATER ELEV: 66.9± (WATER AREA: 4,343 SF)
BOTTOM OF SWALE: 64.9± (BOTTOM AREA: 2,295 SF)
(SEE DETAIL B/C5.1)

D3. 27'x85' SAND INFILTRATION WINDOW #1
EXCAVATE TO WELL DRAINING SOIL (ANTICIPATED TO BE 8' BELOW EXISTING GRADE OR DEEPER IF DETERMINED BY ENGINEER) AND BACKFILL WITH 1.5' OF FILTER SAND OVER PIT RUN (SEE DETAIL B/C5.1).

D4. SWALE #2
DESIGN CAPACITY: 13,786 CF±
TOP OF SWALE ELEV: 72.4±
DESIGN WATER ELEV: 71.4± (WATER AREA: 7,441 SF)
BOTTOM OF SWALE: 68.9± (BOTTOM AREA: 3,770 SF)
(SEE DETAIL B/C5.1)

D5. 27'x141' SAND INFILTRATION WINDOW #2
EXCAVATE TO WELL DRAINING SOIL (ANTICIPATED TO BE 8' BELOW EXISTING GRADE OR DEEPER IF DETERMINED BY ENGINEER) AND BACKFILL WITH 1.5' OF FILTER SAND OVER PIT RUN (SEE DETAIL B/C5.1).

D6. 4" DIA GROUNDWATER OBSERVATION WELL PER ISPWC SD-627, QTY 2.

D7. 12'x12' HAND PLACED 8" DIA RIP RAP OVER NON-WOVEN GEOTEXTILE AT THE END OF THE PIPE TO HELP REDUCE POTENTIAL FOR EROSION. SET TOP OF RIP RAP FLUSH WITH BOTTOM OF SWALE.

REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

PROFESSIONAL ENGINEER REGISTERED 10077 01/17/2022 STATE OF IDAHO LANCE WARNICK

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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE
01/17/2021

PROJECT
20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
STORM DRAIN PLAN
(1 OF 2)

SHEET
C3.1

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NOTES

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3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
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5. SEE SHEETS C4.1 TO C4.3 FOR STREET PLAN AND PROFILE.
6. SEE SHEET C5.1 FOR STREET DETAILS.
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KEYNOTES

D1. 6'x12' HAND PLACED 8" DIA RIP RAP OVER NON-WOVEN GEOTEXTILE AT THE END OF THE PIPE TO HELP REDUCE POTENTIAL FOR EROSION. SET TOP OF RIP RAP FLUSH WITH BOTTOM OF SWALE, QTY 2.

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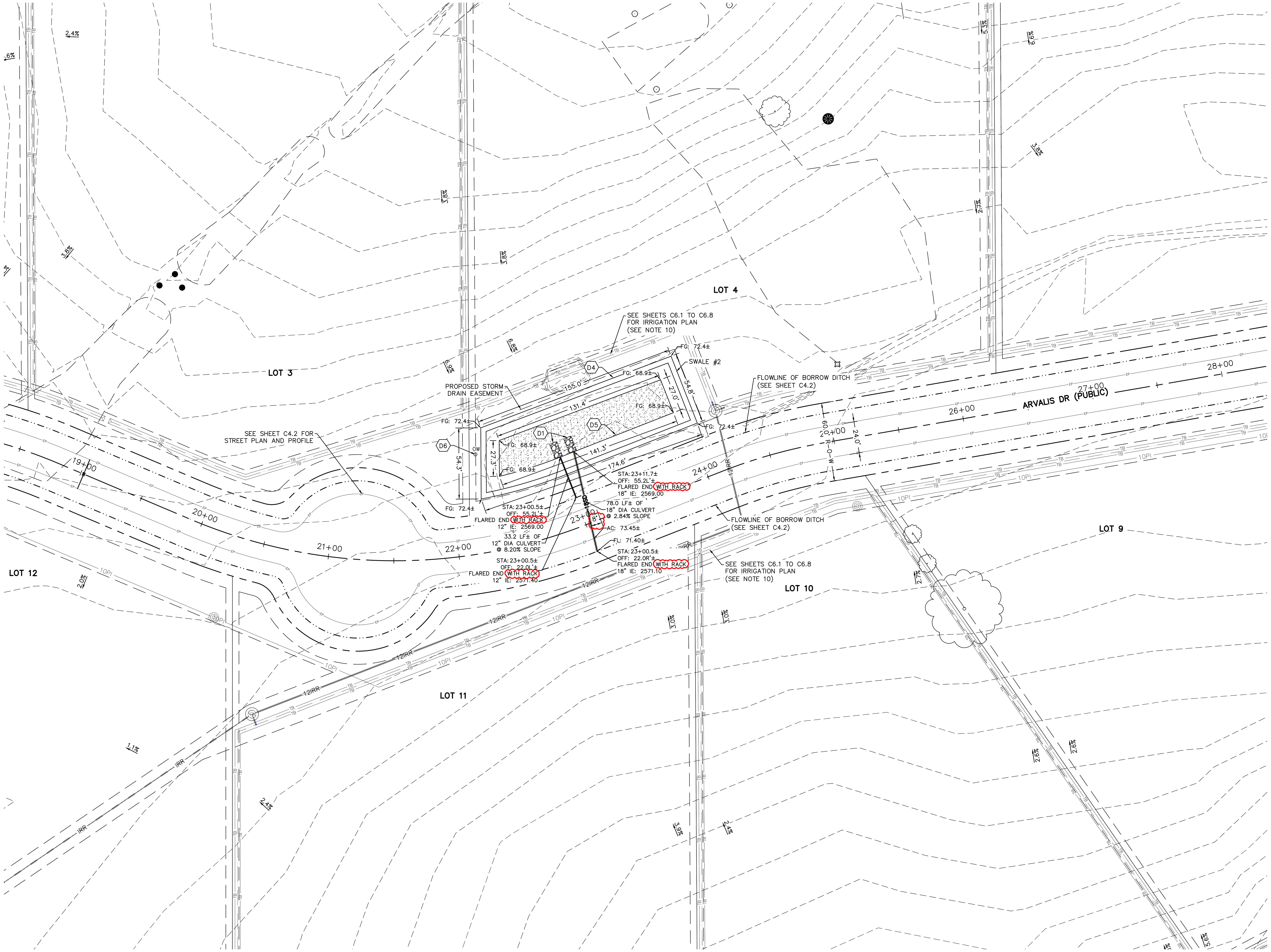
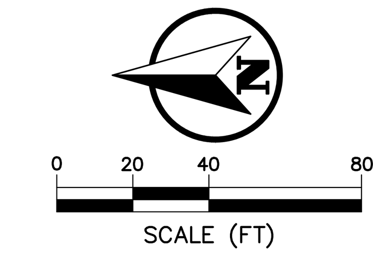
D7. 12'x12' HAND PLACED 8" DIA RIP RAP OVER NON-WOVEN GEOTEXTILE AT THE END OF THE PIPE TO HELP REDUCE POTENTIAL FOR EROSION. SET TOP OF RIP RAP FLUSH WITH BOTTOM OF SWALE.





REVISIONS

C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

ASPEN ENGINEERS
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DEVELOPER
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PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES
SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE
01/17/2021

PROJECT
20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3

STORM DRAIN PLAN (2 OF 2)

SHEET
C3.2

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NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 2'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. SEE SHEETS C3.1 AND C3.2 FOR DRAINAGE PLAN.
6. SEE SHEET C6.1 FOR STREET DETAILS.
7. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE CITY.
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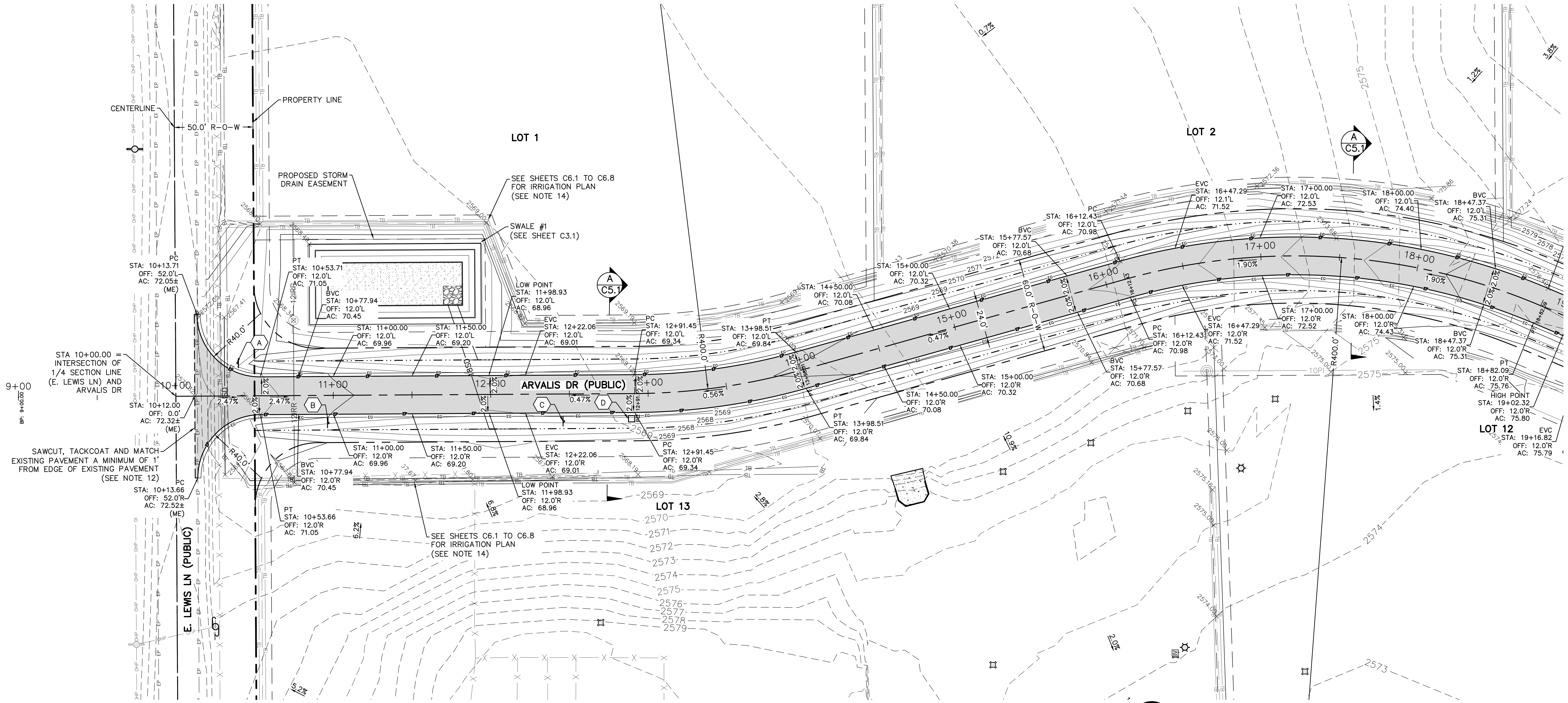
9. CONTRACTOR SHALL GRADE BEYOND LIMITS OF RIGHT-OF-WAY AT THE TIME OF ROAD CONSTRUCTION AS NEEDED TO CREATE SIDE SLOPES ACCEPTABLE TO ENGINEER AND DEVELOPER.
10. THE HORIZONTAL AND VERTICAL GEOMETRY OF ARVALIS DR WAS BASED ON A DESIGN SPEED OF 25 MPH PER THE AASHTO GREEN BOOK.
11. THE EXISTING CORSBERG HOME LOCATED IN THE PROPOSED LOT 7 SHALL TAKE VEHICLE ACCESS FROM THE NEW PUBLIC ROAD AFTER CONSTRUCTION OF ROADWAY IS COMPLETED AND NEW DRIVEWAY TO THEIR RESIDENCE IS CONSTRUCTED.
12. COORDINATE PERMITTING OF ALL WORK IN THE E. LEWIS LEN RIGHT-OF-WAY WITH THE HIGHWAY DISTRICT.
13. ALL CULVERTS SHALL BE: 14 GAGE (0.079" THICK) ALUMINIZED, POLYMER COATED OR TRENCH COATED STEEL WITH 2-2/3"x1/2" CORRUGATIONS; OR CLASS V REINFORCED CONCRETE PIPE PER ACCHD STANDARD 3070.020 (SEE SHEETS C3.1 TO C3.2)/..
14. THIS SITE HAS GRAVITY IRRIGATION DITCHES ALONG NEARLY THE ENTIRE LENGTH OF BOTH SIDES OF THE PROPOSED ROAD WHICH WILL LIMIT THE AMOUNT OF STORMWATER RUNOFF FROM THE SUBDIVISION LOTS THAT WILL MAKE IT TO THE PROPOSED SWALES.

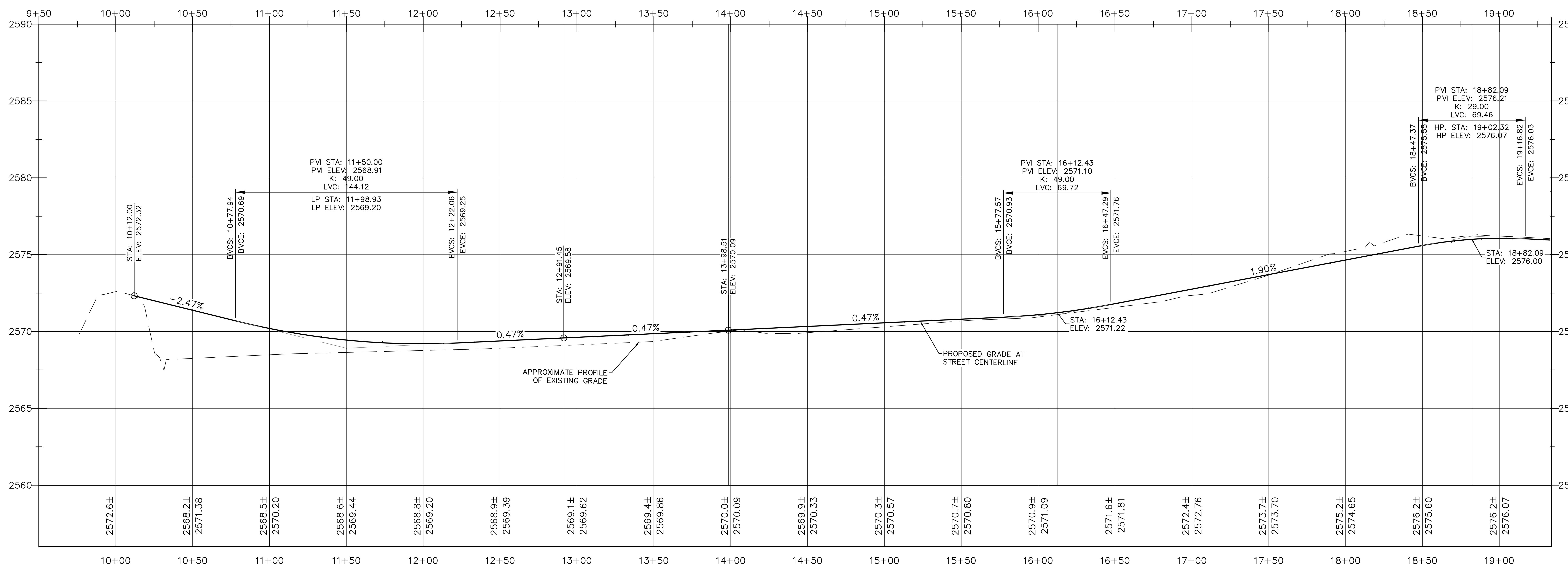
KEYNOTES

A. 36"x36" STOP SIGN PER MUTCD AND ACCHD STANDARDS WITH STREET NAME SIGNS. ROAD NAME SIGNS SHALL BE INSTALLED BY THE DEVELOPER. ROAD SIGNS SHALL HAVE 9" WIDE BLADES, WITH 6" LETTERS AND 3" ROAD TYPE DESIGNATION.
B. NO OUTLET SIGN PER MUTCD STANDARDS.
C. 20 MPH SIGN PER MUTCD STANDARDS.
D. PROVIDE AND INSTALL TYPE III METAL CLUSTER MAILBOX WITH A MINIMUM OF 13 COMPARTMENTS. COORDINATE LOCATION WITH USPS AND THE DEVELOPER.
E. 50 LF± OF 12" DIA CULVERT PER ACCHD STANDARD 3070.20.
F. 24' WIDE PAVED DRIVEWAY APPROACH PER STANDARD DRAWING ACCHD-105. DRIVEWAY SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 6" OF 3/4"-MINUS GRAVEL BASE; AND 9" OF PITRUN SUBBASE.
G. 12' WIDE PAVED DRIVEWAY (SEE SHEET C2.1) SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 4" OF 3/4"-MINUS GRAVEL BASE; AND 6" OF PITRUN SUBBASE.



STREET PLAN – ARVALIS DR

SCALE: 1"=40'



STREET PROFILE – ARVALIS DR

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

REVISIONS	
C	07/23/21–CONTRACTOR
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RED TAIL ESTATES SUBDIVISION NO. 3
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NAMPA, IDAHO 83686

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TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE: 01/17/2021

PROJECT: 20061

TITLE: RED TAIL ESTATES SUBDIVISION NO. 3 — STREET PLAN AND PROFILE (1 OF 3)

SHEET: C4.1

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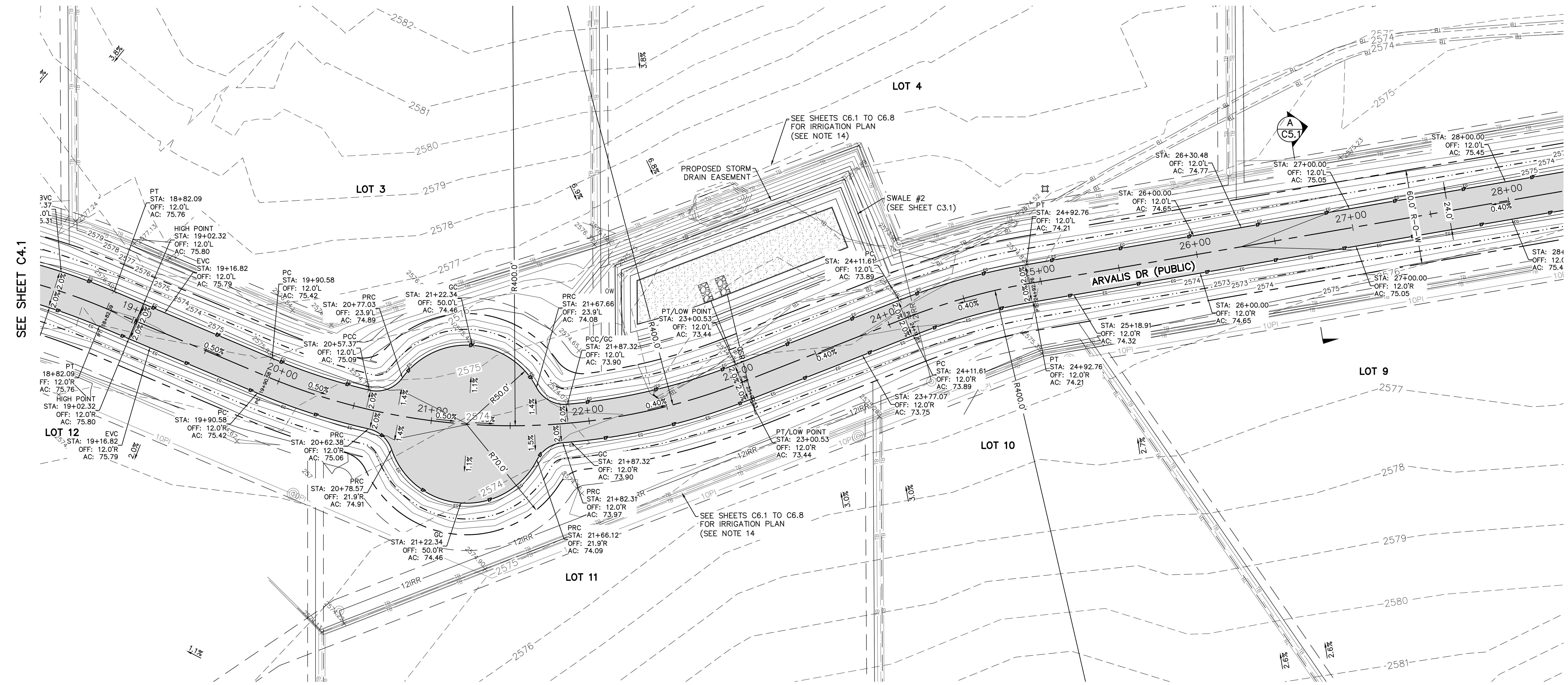
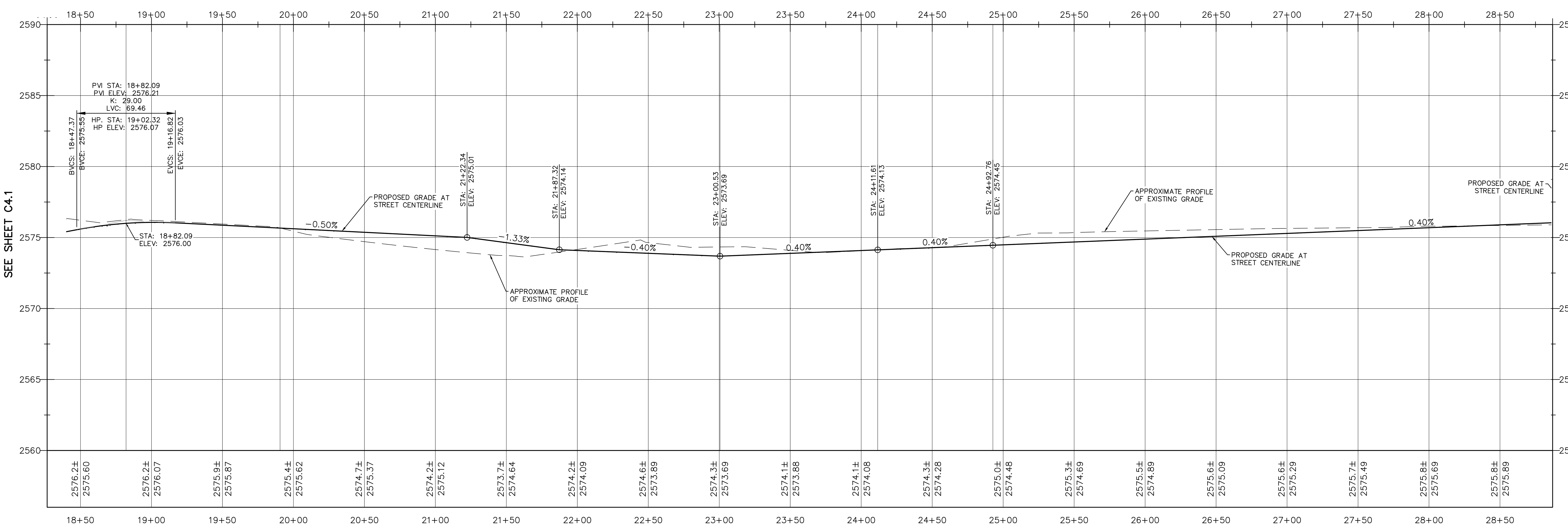


STREET PLAN – ARVALIS DR

SCALE: 1"=40'



STREET PROFILE – ARVALIS DR

HORIZONTAL SCALE: 1"=40'
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KEYNOTES

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E. 50 LF± OF 12" DIA CULVERT PER ACCHD STANDARD 3070.20.
F. 24' WIDE PAVED DRIVEWAY APPROACH PER STANDARD DRAWING ACCHD–105. DRIVEWAY SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 6" OF 3/4"–MINUS GRAVEL BASE; AND 9" OF PITRUN SUBBASE.
G. 12' WIDE PAVED DRIVEWAY (SEE SHEET C2.1) SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 4" OF 3/4"–MINUS GRAVEL BASE; AND 6" OF PITRUN SUBBASE.

REVISIONS

C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

ASPEN ENGINEERS
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Phone: 208-466-8181 - AspenEngineers.com

DEVELOPER
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CONTACT: AUDREY CORSBERG
3901 E. LEWIS LN
NAMPA, IDAHO 83686
PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

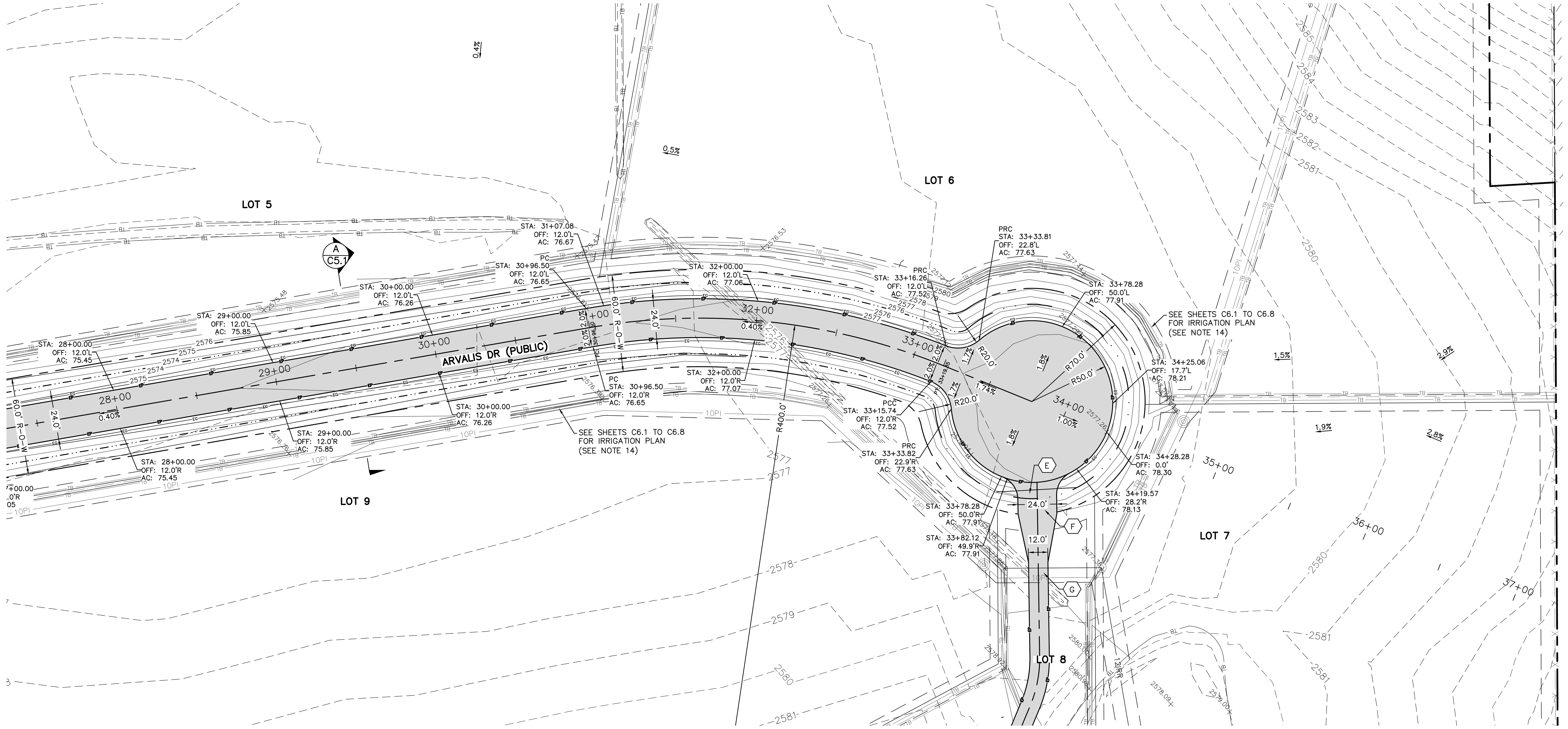
DRAWN: TCW	SCALE: SHOWN
CHECKED: LBW	REVISION: D

DATE: 01/17/2021

PROJECT: 20061

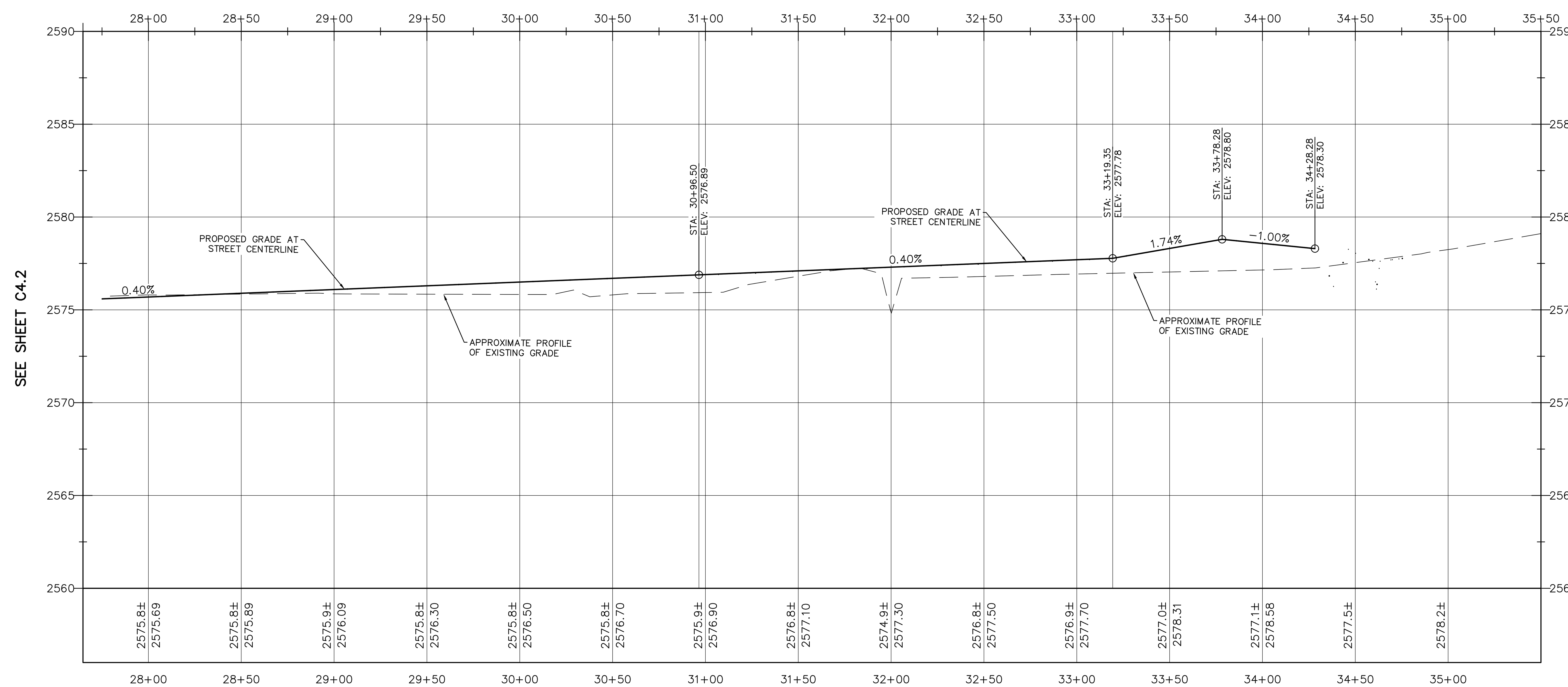
TITLE: RED TAIL ESTATES SUBDIVISION NO. 3 STREET PLAN AND PROFILE (2 OF 3)

SHEET: C4.2



STREET PLAN – ARVALIS DR

SCALE: 1"=40'



STREET PROFILE – ARVALIS DR

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

0 20 40 80
HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=4'

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 2'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. SEE SHEETS C3.1 AND C3.2 FOR DRAINAGE PLAN.
6. SEE SHEET C6.1 FOR STREET DETAILS.
7. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE CITY.
8. CONTRACTOR SHALL REMOVE AND DISPOSE (OR RELOCATE AS NEEDED) ALL SITE FEATURES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS.
9. CONTRACTOR SHALL GRADE BEYOND LIMITS OF RIGHT-OF-WAY AT THE TIME OF ROAD CONSTRUCTION AS NEEDED TO CREATE SIDE SLOPES ACCEPTABLE TO ENGINEER AND DEVELOPER.
10. THE HORIZONTAL AND VERTICAL GEOMETRY OF ARVALIS DR WAS BASED ON A DESIGN SPEED OF 25 MPH PER THE AASHTO GREEN BOOK.
11. THE EXISTING CORSBERG HOME LOCATED IN THE PROPOSED LOT 7 SHALL TAKE VEHICLE ACCESS FROM THE NEW PUBLIC ROAD AFTER CONSTRUCTION OF ROADWAY IS COMPLETED AND NEW DRIVEWAY TO THEIR RESIDENCE IS CONSTRUCTED.
12. COORDINATE PERMITTING OF ALL WORK IN THE E. LEWIS LEN RIGHT-OF-WAY WITH THE HIGHWAY DISTRICT.
13. ALL CULVERTS SHALL BE: 14 GAGE (0.079" THICK) ALUMINIZED, POLYMER COATED OR TRENCH COATED STEEL WITH 2-2/3"x1/2" CORRUGATIONS; OR CLASS V REINFORCED CONCRETE PIPE PER ACCHD STANDARD 3070.20 (SEE SHEETS C3.1 TO C3.2)/..
14. THIS SITE HAS GRAVITY IRRIGATION DITCHES ALONG NEARLY THE ENTIRE LENGTH OF BOTH SIDES OF THE PROPOSED ROAD WHICH WILL LIMIT THE AMOUNT OF STORMWATER RUNOFF FROM THE SUBDIVISION LOTS THAT WILL MAKE IT TO THE PROPOSED SWALES.

KEYNOTES

A. 36"x36" STOP SIGN PER MUTCD AND ACCHD STANDARDS WITH STREET NAME SIGNS. ROAD NAME SIGNS SHALL BE INSTALLED BY THE DEVELOPER. ROAD SIGNS SHALL HAVE 9" WIDE BLADES, WITH 6" LETTERS AND 3" ROAD TYPE DESIGNATION.
B. NO OUTLET SIGN PER MUTCD STANDARDS.
C. 20 MPH SIGN PER MUTCD STANDARDS.
D. PROVIDE AND INSTALL TYPE III METAL CLUSTER MAILBOX WITH A MINIMUM OF 13 COMPARTMENTS. COORDINATE LOCATION WITH USPS AND THE DEVELOPER.
E. 50 LF± OF 12" DIA CULVERT PER ACCHD STANDARD 3070.20.
F. 24' WIDE PAVED DRIVEWAY APPROACH PER STANDARD DRAWING ACCHD-105. DRIVEWAY SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 6" OF 3/4"-MINUS GRAVEL BASE; AND 9" OF PITRUN SUBBASE.
G. 12' WIDE PAVED DRIVEWAY (SEE SHEET C2.1) SHALL BE CONSTRUCTED WITH AT LEAST: 2.5" OF ASPHALT PAVEMENT; 4" OF 3/4"-MINUS GRAVEL BASE; AND 6" OF PITRUN SUBBASE.

REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

LANCE WARNICK, 10017, 01/17/2022, STATE OF IDAHO, LICENSED PROFESSIONAL ENGINEER

ASPEN ENGINEERS
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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES
SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
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LBW	D

DATE 01/17/2021

PROJECT 20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
STREET PLAN AND PROFILE (3 OF 3)

SHEET
C4.3
7 of 18

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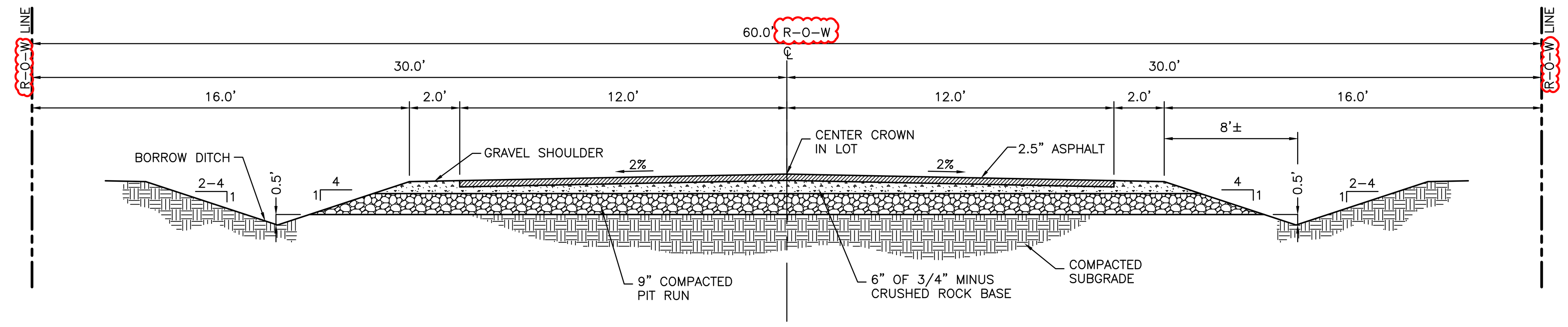
NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
3. SEE SHEETS C4.1 TO C4.3 FOR STREET PLAN AND PROFILE FOR NEW STREET.

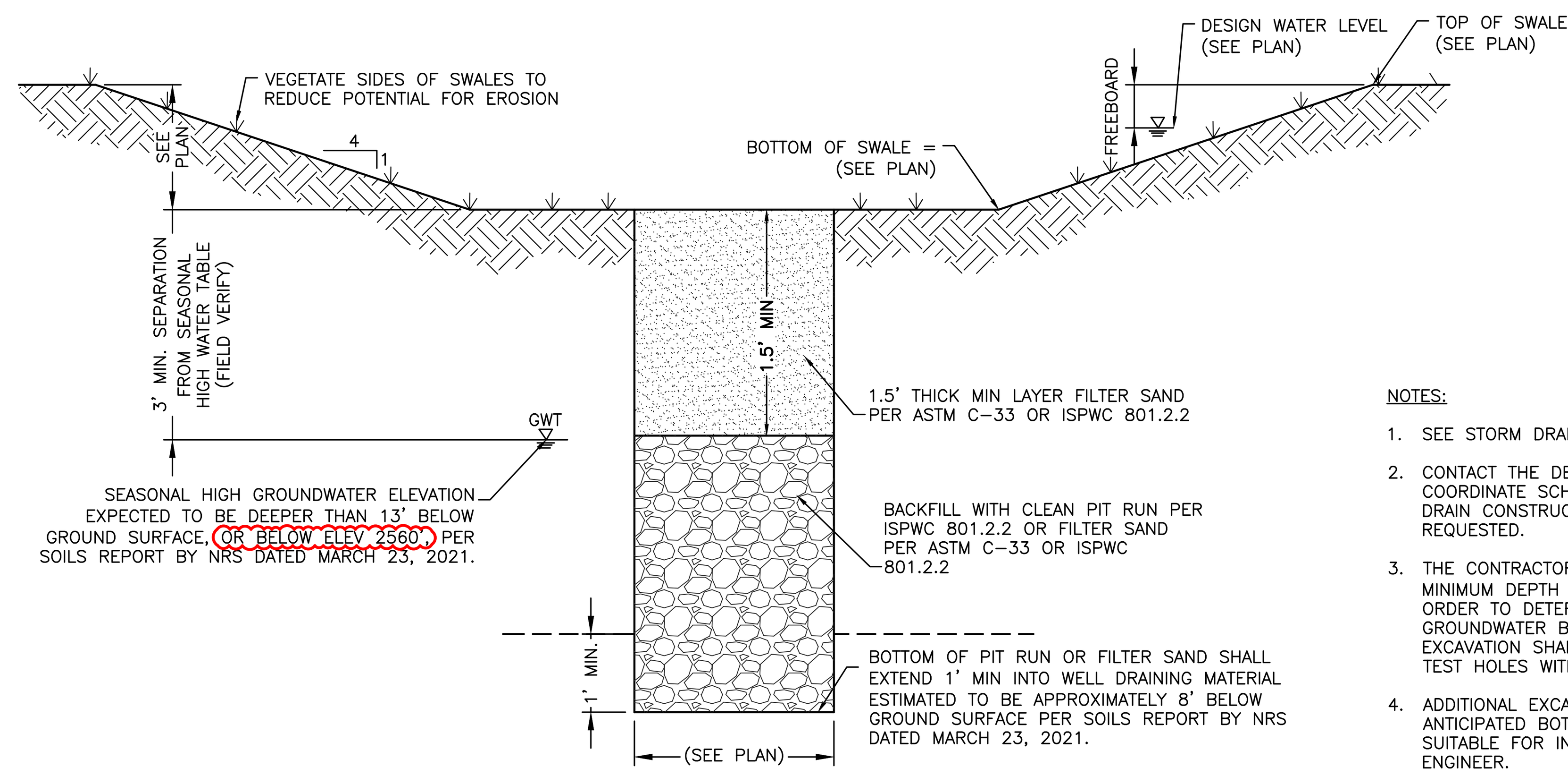


NOTES:

1. ASPHALT PAVING SHALL BE SP 3 WITH A NOMINAL MAXIMUM AGGREGATE SIZE OF 3/4" PER ACCHD SECTION 800.
2. CRUSHED AGGREGATE BASE PER 3/4"-MINUS PER ACCHD STANDARD 802.2.2.
3. PIT-RUN SUB-BASE SHALL BE 6"-MINUS UNCRUSHED AGGREGATE PER ISPWC 801.2.2.
4. SUBGRADE R-VALUE WAS MEASURED AT 56 @ 200 PSI BY AMERICAN GEOTECHNICS (MARCH 29, 2021). THEREFORE THE STANDARD MINIMUM PAVEMENT THICKNESS PER ACCHD STANDARDS ARE USED
5. DUE TO THE ANTICIPATED TRAFFIC INDEX WITH THIS ROAD ONLY SERVING 13 LOTS, THE PAVEMENT WIDTH AND THICKNESS FOR THIS ROAD IS BASED ON "LOW VOLUME STANDARDS" PER ACCHD SD-101.

TYPICAL STREET SECTION FOR "LOW VOLUME ROAD" - ARVALIS DR (PUBLIC)
SCALE: N.T.S.

A
C5.1



NOTES:

1. SEE STORM DRAIN NOTES ON SHEET C1.1.
2. CONTACT THE DESIGN ENGINEER AT 208-466-8181 TO COORDINATE SCHEDULING FOR OBSERVATION DURING STORM DRAIN CONSTRUCTION. A MINIMUM 48 HOUR NOTICE IS REQUESTED.
3. THE CONTRACTOR SHALL EXCAVATE TWO TEST HOLES TO A MINIMUM DEPTH OF 4' BELOW THE BOTTOM OF EACH SWALE IN ORDER TO DETERMINE IF THERE ARE IMPERVIOUS LAYERS OR GROUNDWATER BELOW THE STORM DRAIN. TEST HOLE EXCAVATION SHALL BE OBSERVED BY THE ENGINEER. BACKFILL TEST HOLES WITH CLEAN PIT RUN OR FILTER SAND.
4. ADDITIONAL EXCAVATION MAY BE NEEDED BEYOND THE ANTICIPATED BOTTOM OF THE FILTER SAND TO REACH SOILS SUITABLE FOR INFILTRATION AS DETERMINED BY THE DESIGN ENGINEER.

TYPICAL SWALE SECTION
SCALE: N.T.S.

B
C5.1

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REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

10077

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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES
SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE
01/17/2021

PROJECT
20061

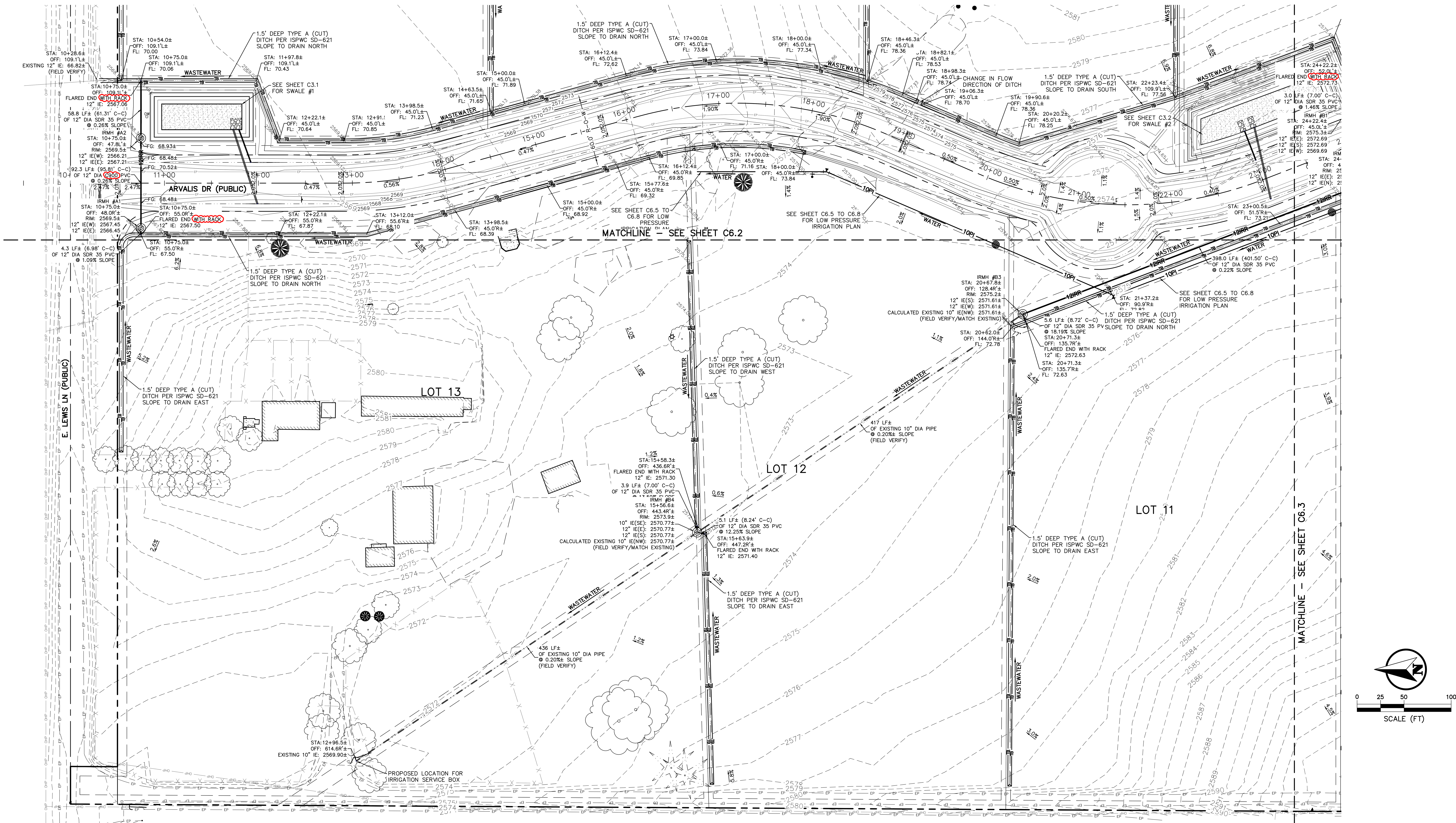
TITLE
RED TAIL ESTATES SUBDIVISION NO. 3

STREET AND STORM DRAIN DETAILS

SHEET
C5.1

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 1'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE COUNTY.
6. COMPLETE ALL WORK ON THE GRAVITY IRRIGATION SYSTEM OUTSIDE THE IRRIGATION SEASON (TYPICALLY APRIL 15 TO OCTOBER 15) OR COORDINATE WITH ALL AFFECTED USERS FOR ANY DISTURBANCE TO THE IRRIGATION DELIVERY SCHEDULE DURING THE IRRIGATION SEASON.
7. THE ELEVATION OF CERTAIN DITCHES ADJACENT TO THE ROAD ARE CRITICAL, THEREFORE THIS PLAN SHOWS THE LOCATION AND THE ELEVATION OF THE FLOWLINE OF THESE DITCHES FOR DESIGN. THESE ELEVATIONS ARE ALSO REFLECTED IN THE CORRESPONDING 3D SURFACE MODEL USED DESIGN. THE CONTRACTOR SHALL GRADE A 10'–30' WIDE AREA ON THE UPHILL SIDE OF THE DITCHES AS NEEDED TO BLEND THE GROUND SLOPE DOWN TO THE TOP OF THE DITCH. THESE DITCHES SHALL BE CONSTRUCTED AS A 4' WIDE 1.5' DEEP TYPE A (CUT) DITCH PER ISPWC SD–621.
8. IN AREAS WHERE THE ELEVATIONS OF THE DITCH FLOWLINES ARE NOT PROVIDED, THE CONTRACTOR CAN CONSTRUCT THE 4' WIDE 1.5' DEEP TYPE A (CUT) DITCH PER ISPWC SD–621, BY MEASURING DOWN FROM THE EXISTING GROUND SURFACE. THESE DITCHES ARE NOT MODELED IN THE 3D SURFACE MODEL OF THE SITE.
9. ALL GRAVITY IRRIGATION PIPE SHALL CONFORM TO ISPWC SECTION 601. PIPE WILL BE SDR 35 PVC, UNLESS NOTED OTHERWISE.
10. PROVIDE AND MAINTAIN A MINIMUM OF 12" OF COVER OVER PIPING.
11. ALL IRRIGATION MANHOLES SHALL BE PRECAST CONCRETE MANHOLES CONSTRUCTED IN ACCORDANCE WITH DETAILS 1/C7.1 AND A/C7.1.
12. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
13. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.
14. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL PERFORM A SITE WALKTHROUGH WITH THE DEVELOPER TO CONFIRM IMPROVEMENTS ARE IN LINE WITH THEIR EXPECTATIONS.



REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

ASPEN ENGINEERS

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PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE
01/17/2021

PROJECT
20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
GRAVITY IRRIGATION PLAN (1 OF 4)

SHEET
C6.1

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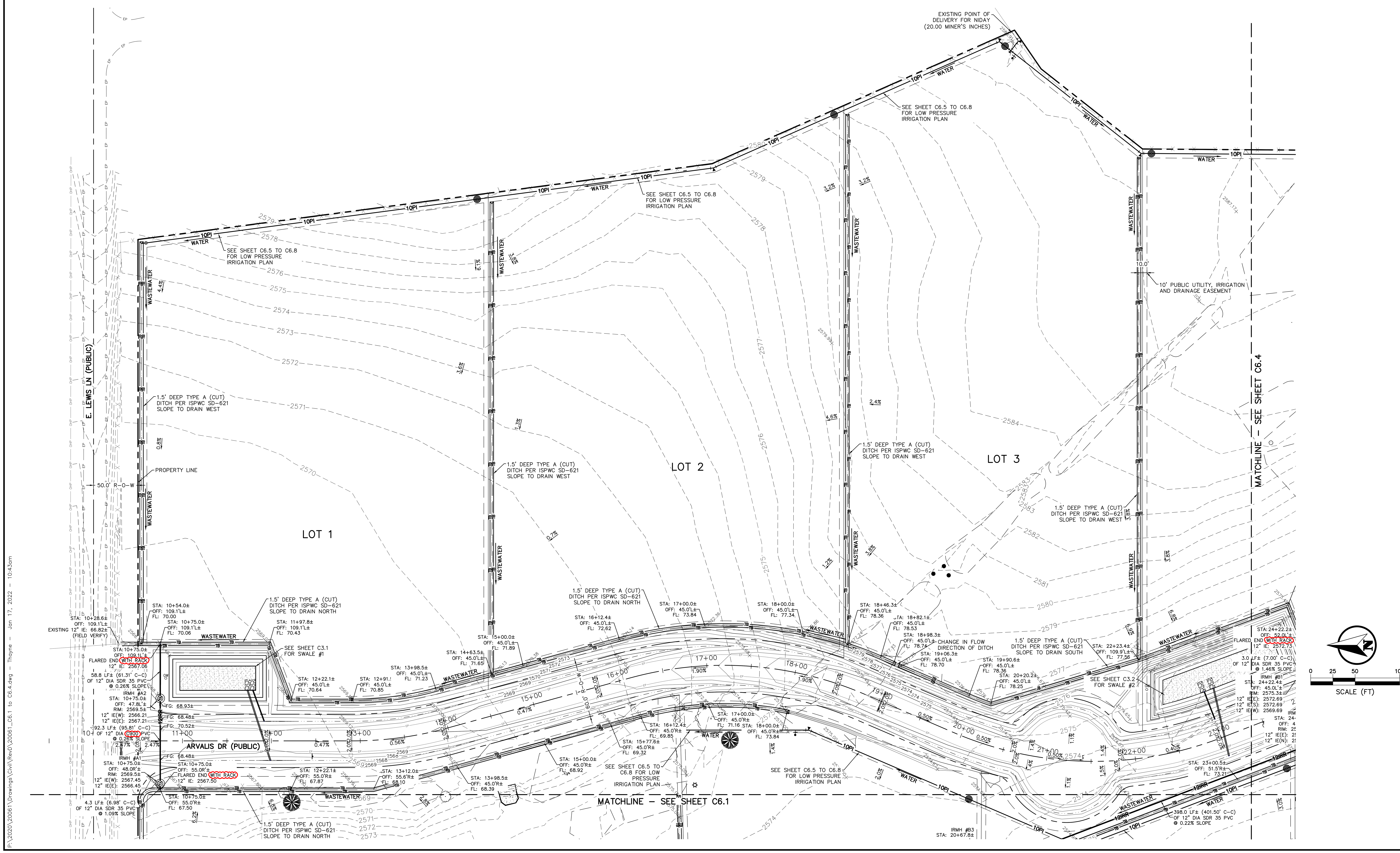
NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 1'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE COUNTY.
6. COMPLETE ALL WORK ON THE GRAVITY IRRIGATION SYSTEM OUTSIDE THE IRRIGATION SEASON (TYPICALLY APRIL 15 TO OCTOBER 15) OR COORDINATE WITH ALL AFFECTED USERS FOR ANY DISTURBANCE TO THE IRRIGATION DELIVERY SCHEDULE DURING THE IRRIGATION SEASON.
7. THE ELEVATION OF CERTAIN DITCHES ADJACENT TO THE ROAD ARE CRITICAL, THEREFORE THIS PLAN SHOWS THE LOCATION AND THE ELEVATION OF THE FLOWLINE OF THESE DITCHES FOR DESIGN. THESE ELEVATIONS ARE ALSO REFLECTED IN THE CORRESPONDING 3D SURFACE MODEL USED DESIGN. THE CONTRACTOR SHALL GRADE A 10'-30' WIDE AREA ON THE UPHILL SIDE OF THE DITCHES AS NEEDED TO BLEND THE GROUND SLOPE DOWN TO THE TOP OF THE DITCH. THESE DITCHES SHALL BE CONSTRUCTED AS A 4' WIDE 1.5' DEEP TYPE A (CUT) DITCH PER ISPWC SD-621.
8. IN AREAS WHERE THE ELEVATIONS OF THE DITCH FLOWLINES ARE NOT PROVIDED, THE CONTRACTOR CAN CONSTRUCT THE 4' WIDE 1.5' DEEP TYPE A (CUT) DITCH PER ISPWC SD-621, BY MEASURING DOWN FROM THE EXISTING GROUND SURFACE. THESE DITCHES ARE NOT MODELED IN THE 3D SURFACE MODEL OF THE SITE.
9. ALL GRAVITY IRRIGATION PIPE SHALL CONFORM TO ISPWC SECTION 601. PIPE WILL BE SDR 35 PVC, UNLESS NOTED OTHERWISE.
10. PROVIDE AND MAINTAIN A MINIMUM OF 12" OF COVER OVER PIPING.
11. ALL IRRIGATION MANHOLES SHALL BE PRECAST CONCRETE MANHOLES CONSTRUCTED IN ACCORDANCE WITH DETAILS 1/C7.1 AND A/C7.1.
12. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
13. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.
14. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL PERFORM A SITE WALKTHROUGH WITH THE DEVELOPER TO CONFIRM IMPROVEMENTS ARE IN LINE WITH THEIR EXPECTATIONS.



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REVISIONS

C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE 01/17/2021
PROJECT 20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
GRAVITY IRRIGATION PLAN (2 OF 4)

SHEET
C6.2
10 of 18

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 1'. FINISHED CONTOUR LINES ARE SHOWN AT AN INTERVAL OF 1'.
5. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE COUNTY.
6. COMPLETE ALL WORK ON THE GRAVITY IRRIGATION SYSTEM OUTSIDE THE IRRIGATION SEASON (TYPICALLY APRIL 15 TO OCTOBER 15) OR COORDINATE WITH ALL AFFECTED USERS FOR ANY DISTURBANCE TO THE IRRIGATION DELIVERY SCHEDULE DURING THE IRRIGATION SEASON.
7. THE ELEVATION OF CERTAIN DITCHES ADJACENT TO THE ROAD ARE CRITICAL, THEREFORE THIS PLAN SHOWS THE LOCATION AND THE ELEVATION OF THE FLOWLINE OF THESE DITCHES FOR DESIGN. THESE ELEVATIONS ARE ALSO REFLECTED IN THE CORRESPONDING 3D SURFACE MODEL USED DESIGN. THE CONTRACTOR SHALL GRADE A 10'-30' WIDE AREA ON THE UPHILL SIDE OF THE DITCHES AS NEEDED TO BLEND THE GROUND SLOPE DOWN TO THE TOP OF THE DITCH. THESE DITCHES SHALL BE CONSTRUCTED AS A 4' WIDE 1.5' DEEP TYPE A (CUT) DITCH PER ISPWC SD-621.
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9. ALL GRAVITY IRRIGATION PIPE SHALL CONFORM TO ISPWC SECTION 601. PIPE WILL BE SDR 35 PVC, UNLESS NOTED OTHERWISE.
10. PROVIDE AND MAINTAIN A MINIMUM OF 12" OF COVER OVER PIPING.
11. ALL IRRIGATION MANHOLES SHALL BE PRECAST CONCRETE MANHOLES CONSTRUCTED IN ACCORDANCE WITH DETAILS 1/C7.1 AND A/C7.1.
12. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
13. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.
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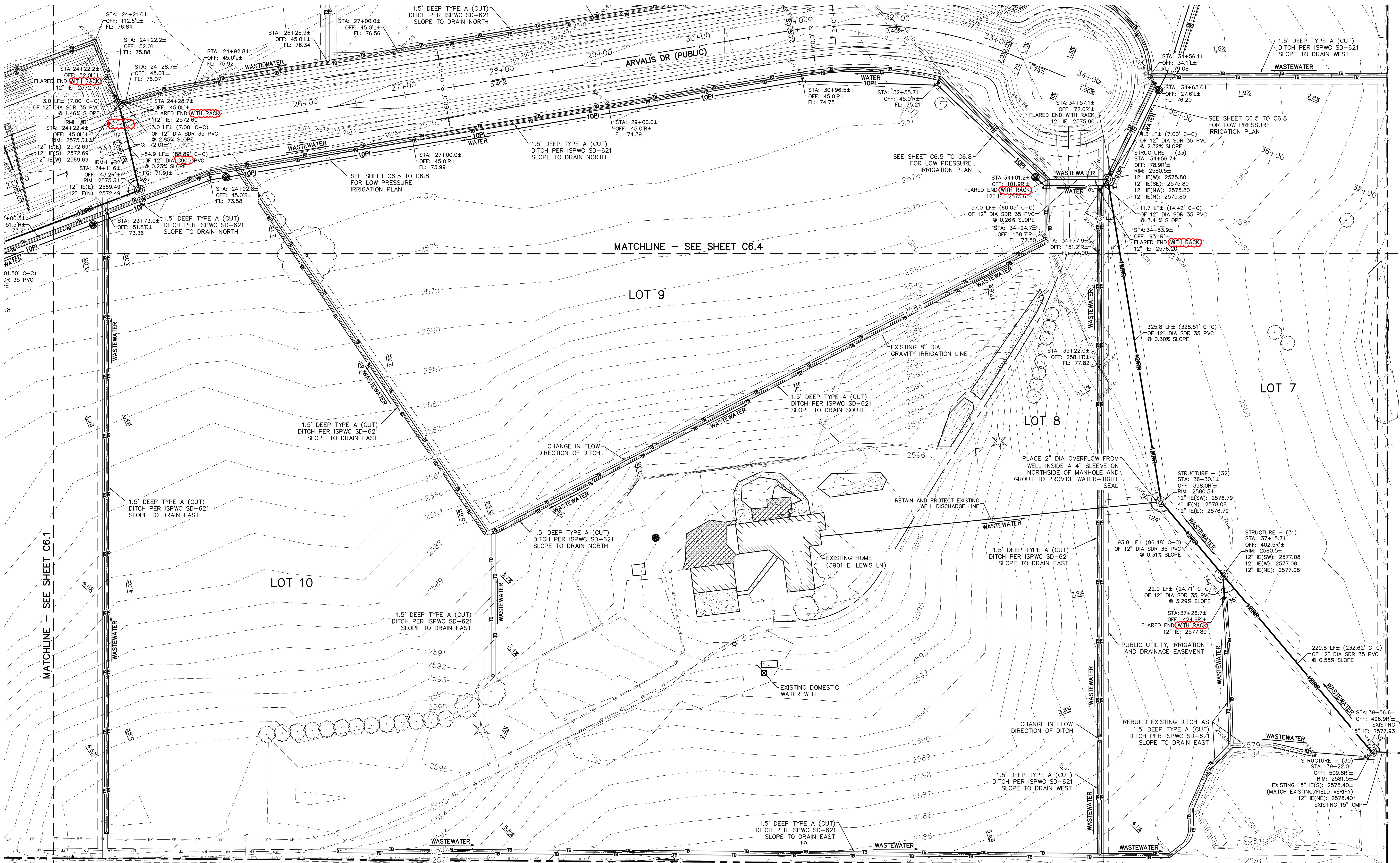

REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

LANCE WARNICK
10071
PROFESSIONAL ENGINEER
STATE OF IDAHO
01/17/2022

ASPEN ENGINEERS

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CIVIL IMPROVEMENT DRAWINGS FOR
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DATE
01/17/2021

PROJECT
20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3

GRAVITY IRRIGATION PLAN (3 OF 4)

SHEET
C6.3

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NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
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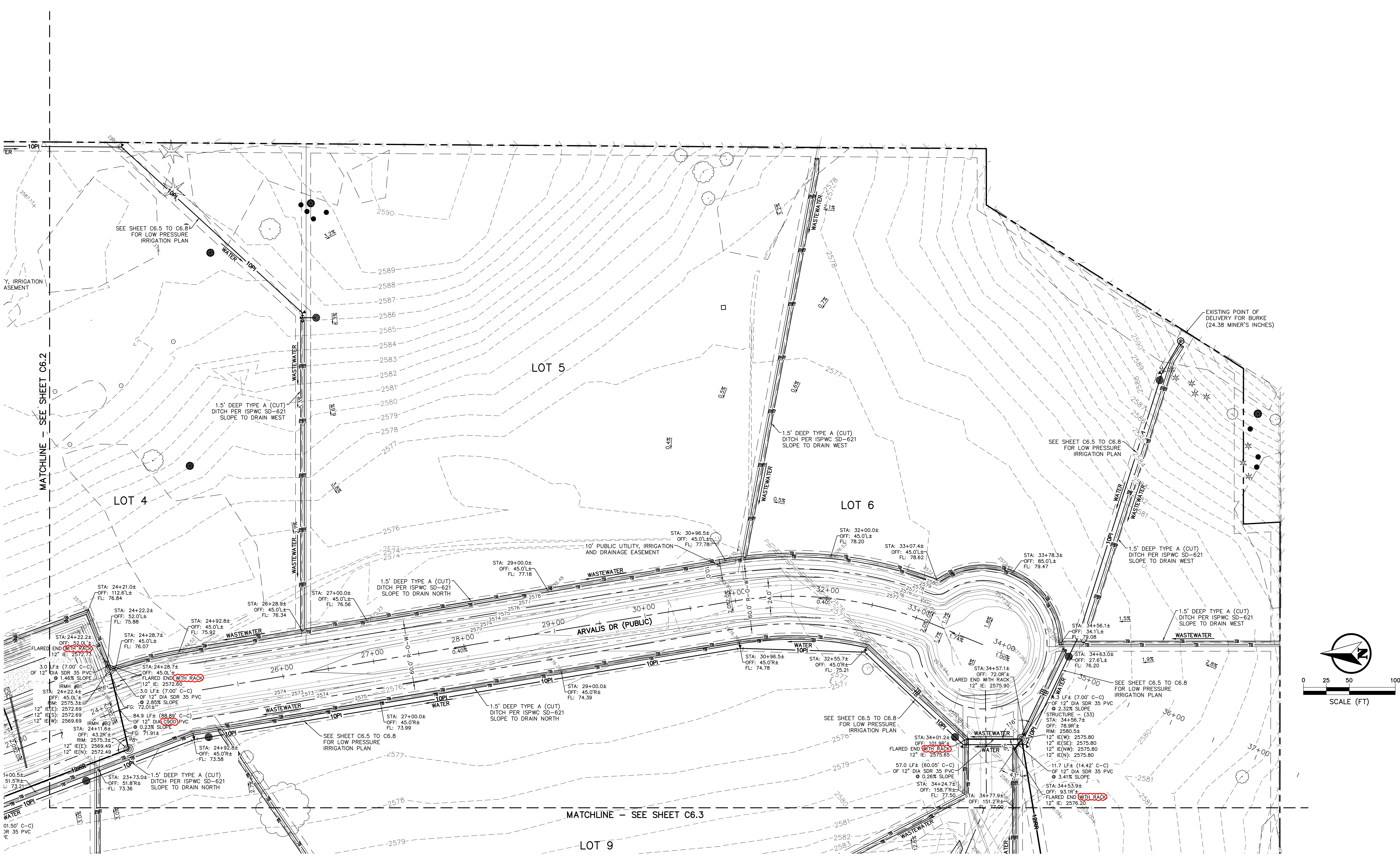
9. ALL GRAVITY IRRIGATION PIPE SHALL CONFORM TO ISPWC SECTION 601. PIPE WILL BE SDR 35 PVC, UNLESS NOTED OTHERWISE.
10. PROVIDE AND MAINTAIN A MINIMUM OF 12" OF COVER OVER PIPING.
11. ALL IRRIGATION MANHOLES SHALL BE PRECAST CONCRETE MANHOLES CONSTRUCTED IN ACCORDANCE WITH DETAILS 1/C7.1 AND A/C7.1.
12. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
13. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.
14. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL PERFORM A SITE WALKTHROUGH WITH THE DEVELOPER TO CONFIRM IMPROVEMENTS ARE IN LINE WITH THEIR EXPECTATIONS.



REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

LICENSED PROFESSIONAL ENGINEER 11007 01/17/2022 STATE OF IDAHO LANCE WARNICK

ASPEN ENGINEERS
1619 N. Linder Rd, Suite 110 - Kuna, Idaho 83634
Phone: 208-466-8181 - AspenEngineers.com

DEVELOPER
CORSBERG LAND, LLC
CONTACT: AUDREY CORSBERG
3901 E. LEWIS LN
NAMPA, IDAHO 83686
PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE 01/17/2021
PROJECT 20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
GRAVITY IRRIGATION PLAN (4 OF 4)

SHEET C6.4

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROTECT ALL SURVEY MONUMENTS DURING CONSTRUCTION. ANY MONUMENT DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY A PROFESSIONAL LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR.
3. ADD 2500' TO SITE ELEVATIONS TO OBTAIN THE PROJECT DATUM.
4. EXISTING CONTOUR LINES ARE SHOWN AT AT INTERVAL OF 1'.
5. ABANDONED TEST PITS, STORM DRAINS OR ANY OTHER DISTURBED EXCAVATION LOCATED UNDER THE PROPOSED STREET SHALL BE RE-EXCAVATED TO NATIVE SOIL AND BACKFILLED WITH STRUCTURAL FILL PER ISPWC SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SOILS DATA TO VERIFY NATIVE MATERIAL OR ANY SOURCE USED FOR BACKFILL MEETS THE REQUIREMENTS OF ENGINEERED FILL PER ISPWC AND PROVIDE A COPY OF ALL COMPACTION TESTS TO THE COUNTY.
6. COMPLETE ALL WORK ON THE GRAVITY IRRIGATION SYSTEM OUTSIDE THE IRRIGATION SEASON (TYPICALLY APRIL 15 TO OCTOBER 15) OR COORDINATE WITH ALL AFFECTED USERS FOR ANY DISTURBANCE TO THE IRRIGATION DELIVERY SCHEDULE DURING THE IRRIGATION SEASON.
7. PROVIDE AND MAINTAIN A MINIMUM OF 12" OF COVER OVER PIPING.
8. ALL LOW PRESSURE IRRIGATION PIPE SHALL CONFORM TO ISPWC SECTION 901. PIPE WILL BE CLASS 200 PVC, UNLESS NOTED OTHERWISE.
10. SEE SHEETS C3.1 TO C3.2 FOR STORM DRAIN PLAN.
11. SEE SHEETS C6.1 TO C6.4 FOR GRAVITY IRRIGATION PLAN.
12. SEE SHEETS C7.1 TO C7.2 FOR IRRIGATION DETAILS.
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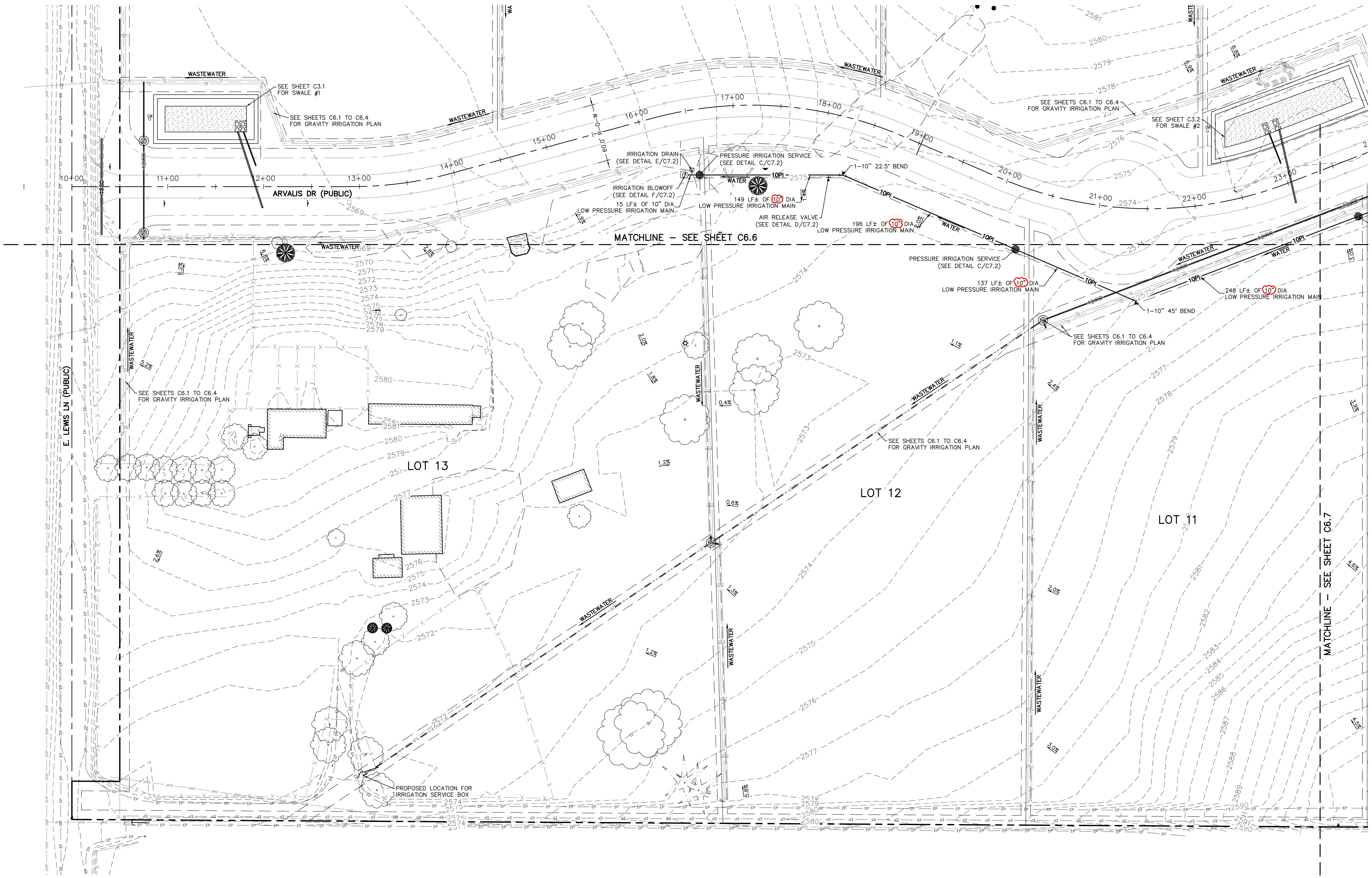

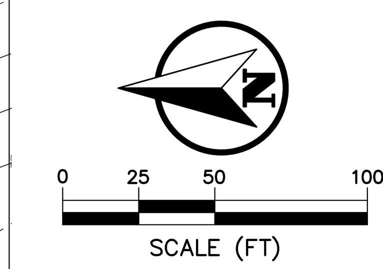

REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

PROFESSIONAL ENGINEER 10071 STATE OF IDAHO LANCE WARNICK 01/17/2022

ASPEN ENGINEERS
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PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE 01/17/2021

PROJECT 20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
LOW PRESSURE IRRIGATION PLAN (1 OF 4)

SHEET
C6.5

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NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
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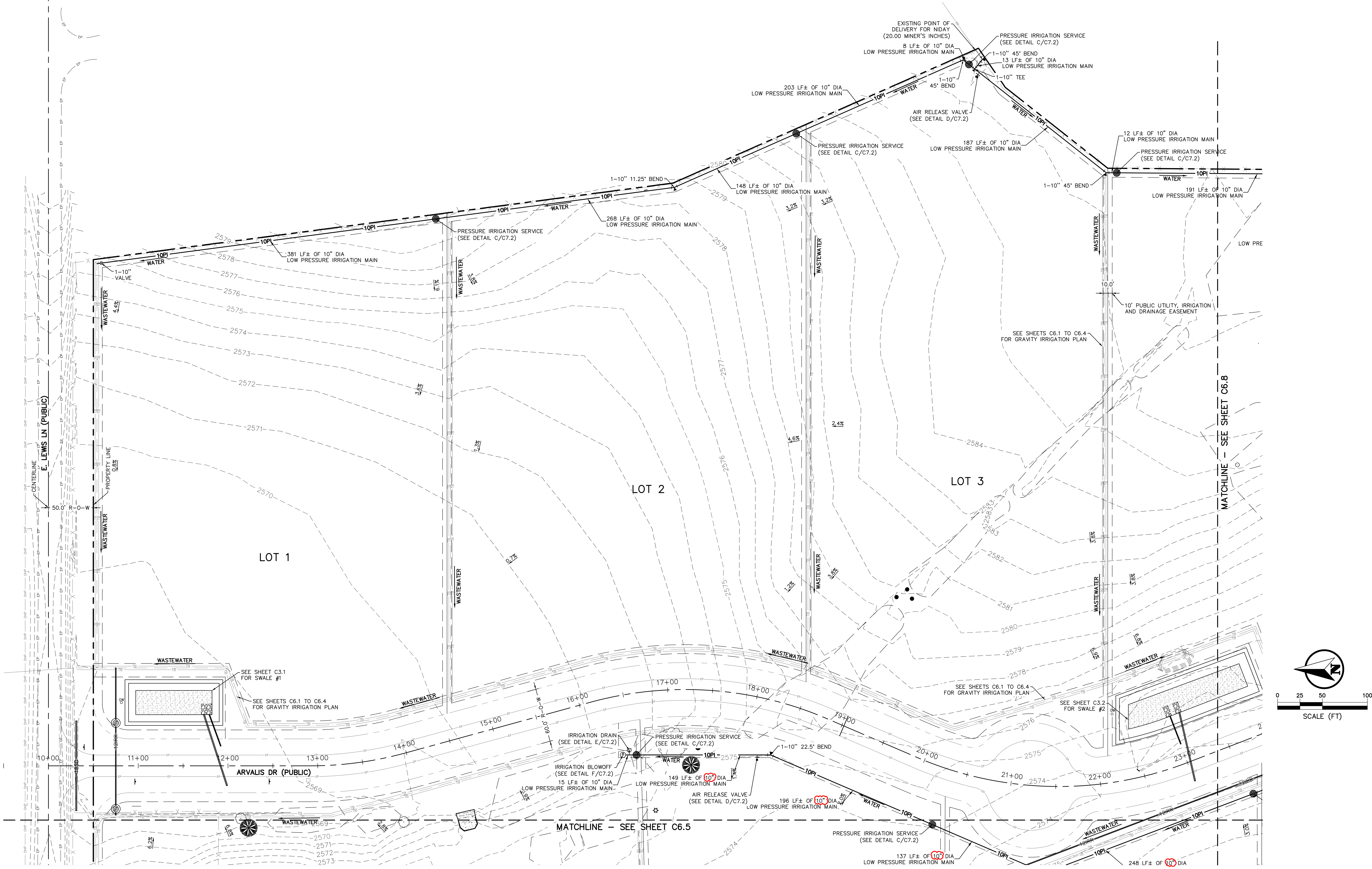

REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

ASPEN ENGINEERS
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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE: 01/17/2021

PROJECT: 20061

TITLE: RED TAIL ESTATES SUBDIVISION NO. 3
LOW PRESSURE IRRIGATION PLAN (2 OF 4)

SHEET: C6.6

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NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
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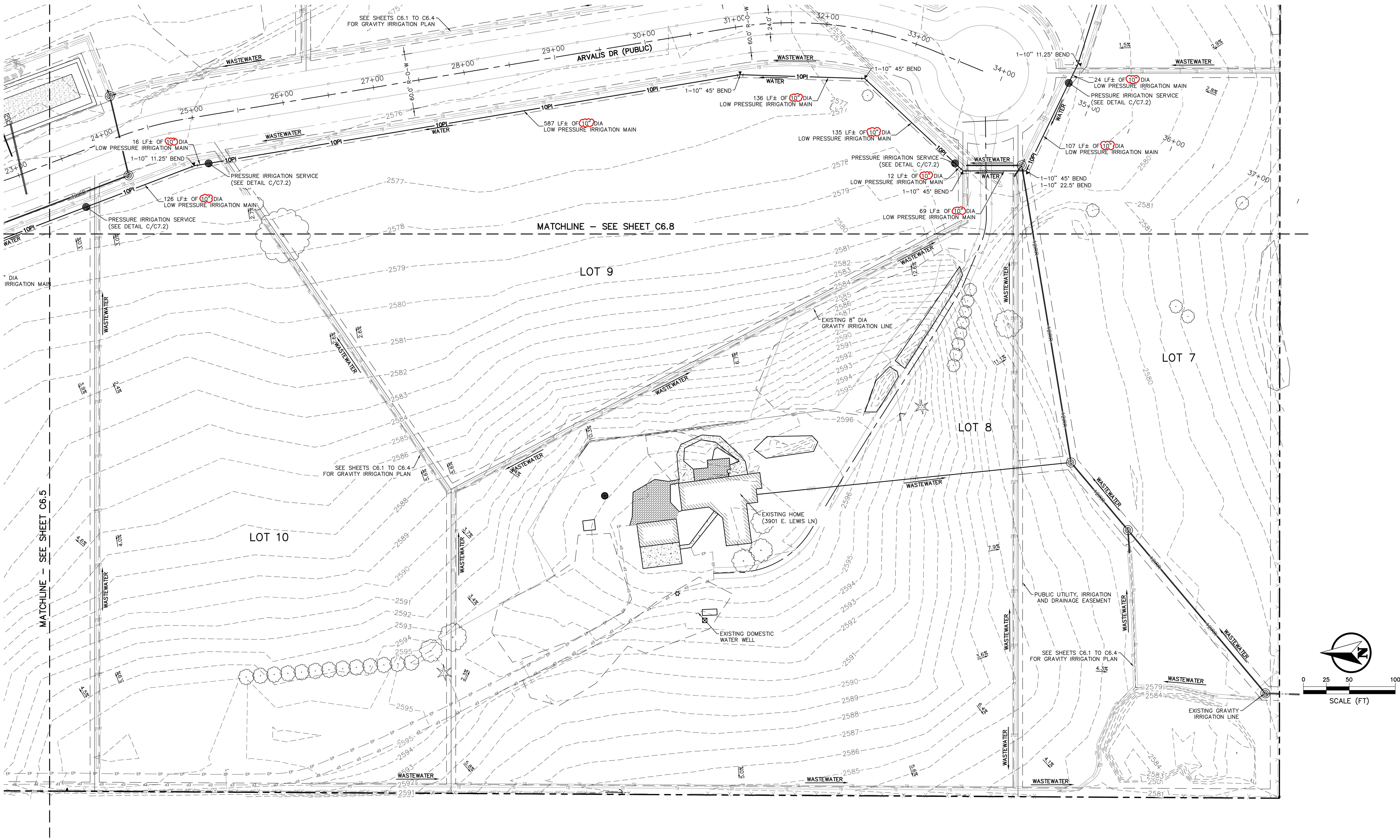

REVISIONS

C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

PROFESSIONAL ENGINEER 10071 01/17/2022 STATE OF IDAHO LANCE WARNICK

ASPEN ENGINEERS
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PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN: TCW	SCALE: SHOWN
CHECKED: LBW	REVISION: D

DATE: 01/17/2021

PROJECT: 20061

TITLE: RED TAIL ESTATES SUBDIVISION NO. 3
LOW PRESSURE IRRIGATION PLAN (3 OF 4)

SHEET: C6.7

NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
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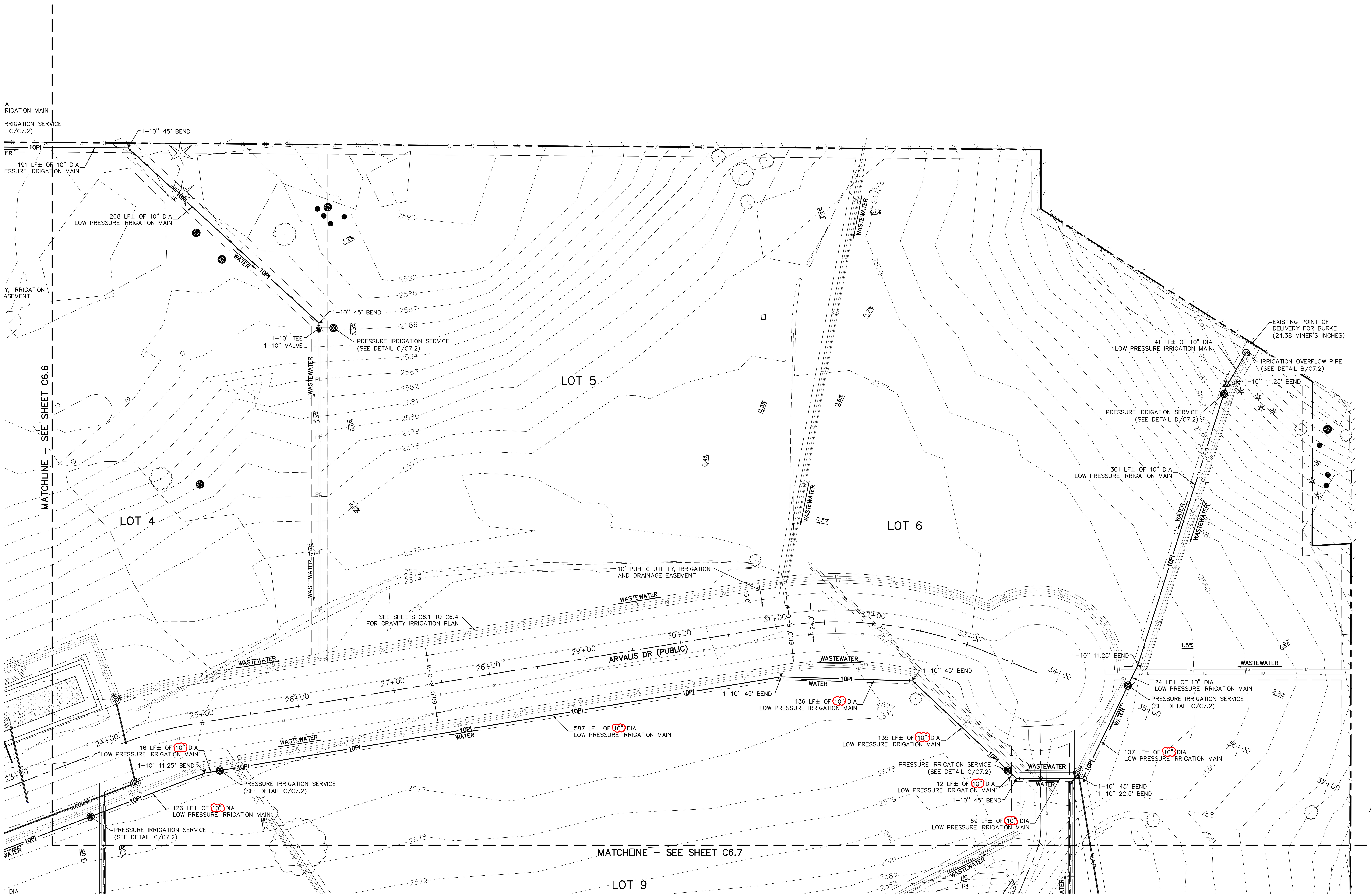

REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

LANCE WARNICK PROFESSIONAL ENGINEER 10071 01/17/2022 STATE OF IDAHO

ASPEN ENGINEERS
1619 N. Linder Rd, Suite 110 · Kuna, Idaho 83634
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DEVELOPER
CORSBERG LAND, LLC
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NAMPA, IDAHO 83686
PHONE: 208-250-9809

CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
3901 & 4001 E. LEWIS LN
NAMPA, IDAHO 83686

DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE 01/17/2021
PROJECT 20061
TITLE RED TAIL ESTATES SUBDIVISION NO. 3
LOW PRESSURE IRRIGATION PLAN (4 OF 4)
SHEET C6.8

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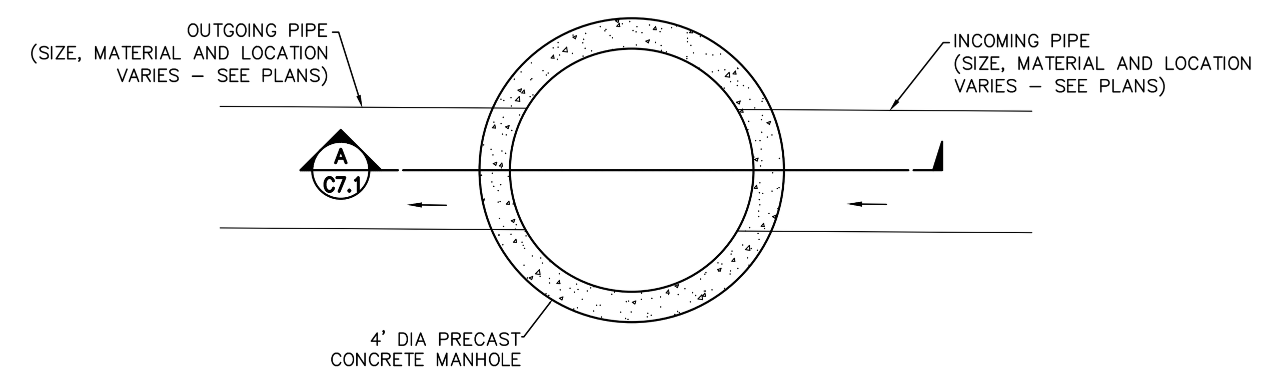
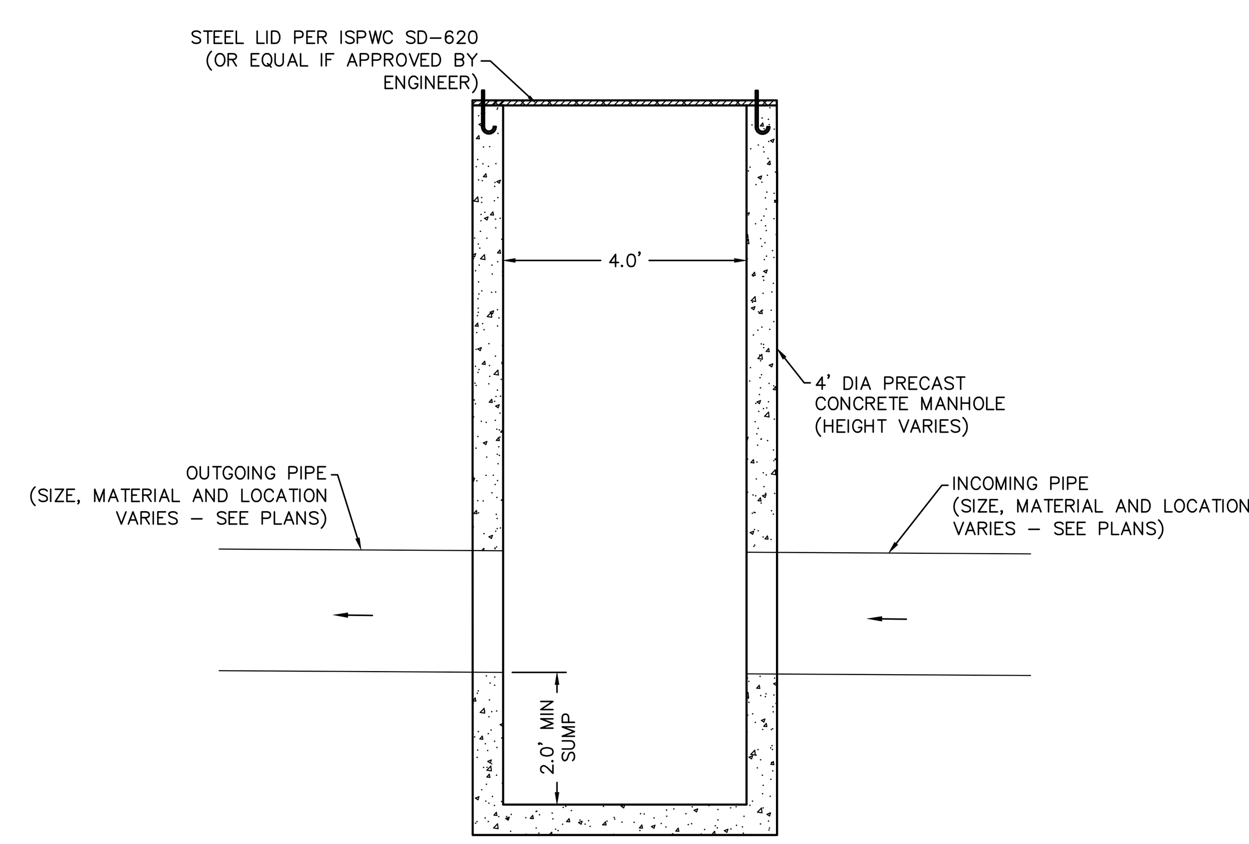
NOTES

1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. SEE SHEETS C6.1 TO C6.4 FOR GRAVITY IRRIGATION PLAN.
3. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.



GRAVITY IRRIGATION MANHOLE – PLAN VIEW 1 / C7.1
SCALE: N.T.S.



GRAVITY IRRIGATION MANHOLE – SECTION VIEW A / C7.1
SCALE: N.T.S.

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REVISIONS	
C	07/23/21–CONTRACTOR
D	01/17/22–NHD/COUNTY

PROFESSIONAL ENGINEER REGISTERED 10071 01/17/2022 STATE OF IDAHO LANCE WARNICK

ASPEN ENGINEERS
1619 N. Linder Rd, Suite 110 · Kuna, Idaho 83634
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DEVELOPER
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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES SUBDIVISION NO. 3
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DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE 01/17/2021

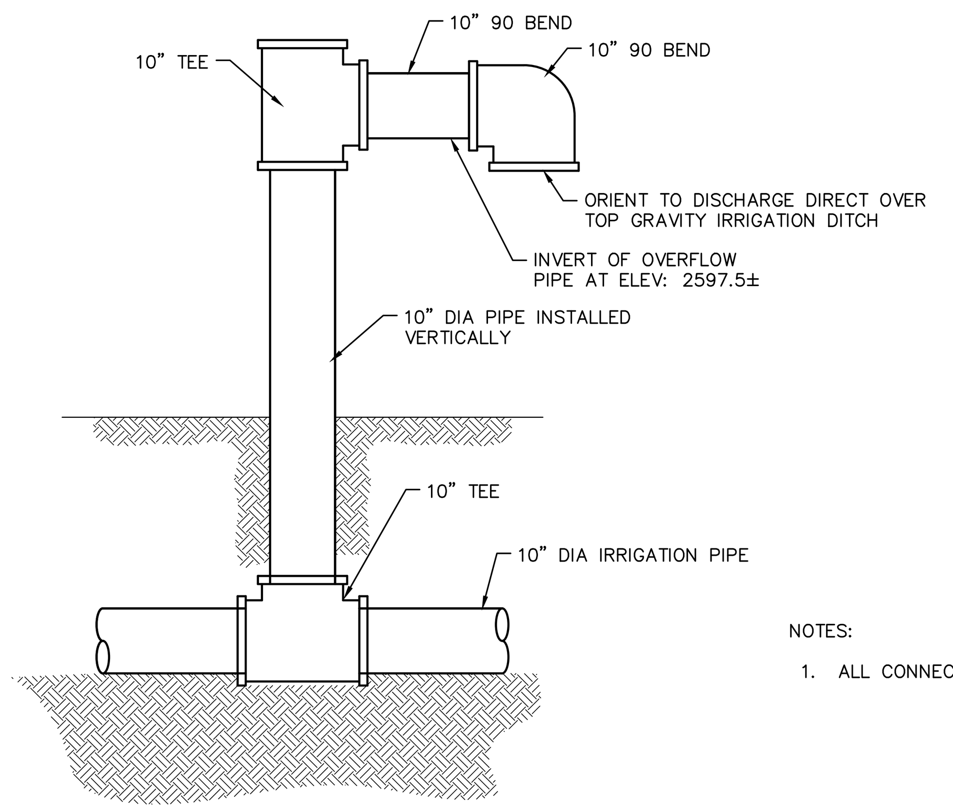
PROJECT 20061

TITLE
RED TAIL ESTATES SUBDIVISION NO. 3
IRRIGATION DETAILS (1 OF 2)

SHEET
C7.1

NOTES

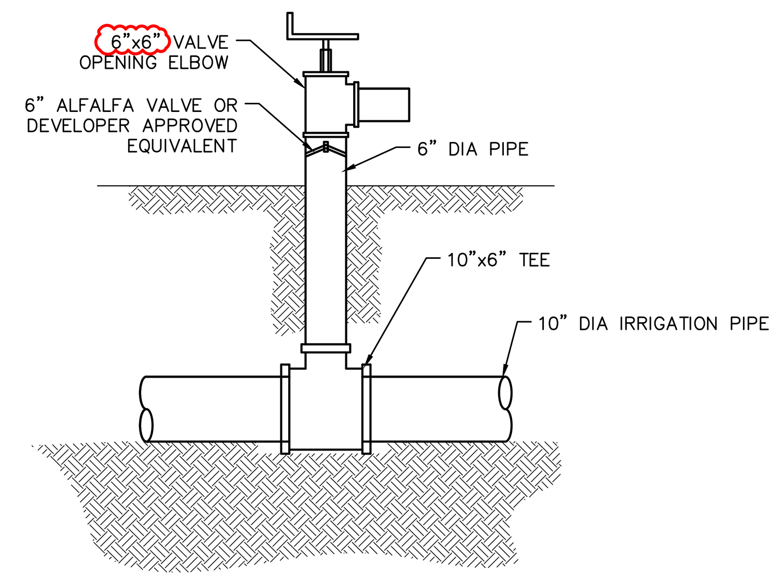
1. SEE SHEET C1.1 FOR ADDITIONAL NOTES AND LEGEND.
2. SEE SHEETS C6.1 TO C6.4 FOR GRAVITY IRRIGATION PLAN.
3. SEE SHEETS C6.5 TO C6.8 FOR LOW PRESSURE IRRIGATION PLAN.



NOTES:

1. ALL CONNECTIONS SHALL BE WATER-TIGHT.

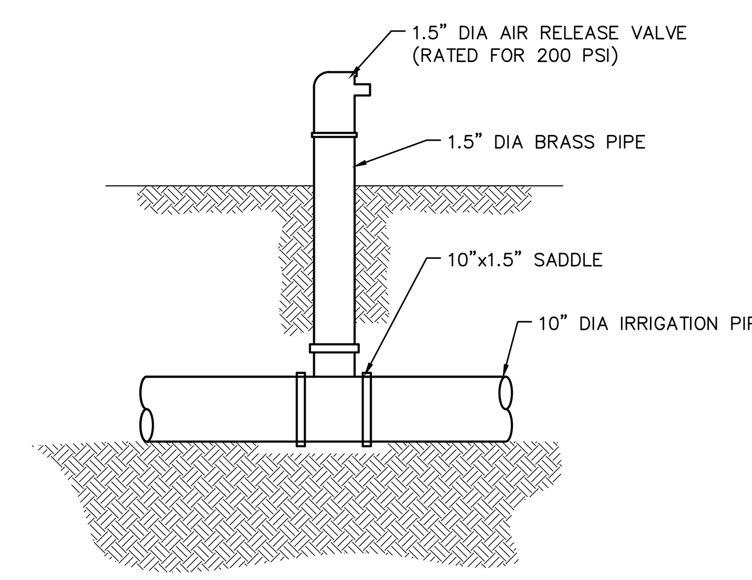
OVERFLOW PIPE DETAIL
SCALE: N.T.S.
B / C7.1



NOTES:

1. ALL CONNECTIONS SHALL BE WATER-TIGHT.
2. CONTRACTOR MAY PROPOSED ALTERNATIVES FOR THIS TYPE OF SERVICE CONNECTION FOR REVIEW BY DEVELOPER AND ENGINEER.

LOW PRESSURE IRRIGATION SERVICE DETAIL
SCALE: N.T.S.
C / C7.1



NOTES:

1. ALL CONNECTIONS SHALL BE WATER-TIGHT.
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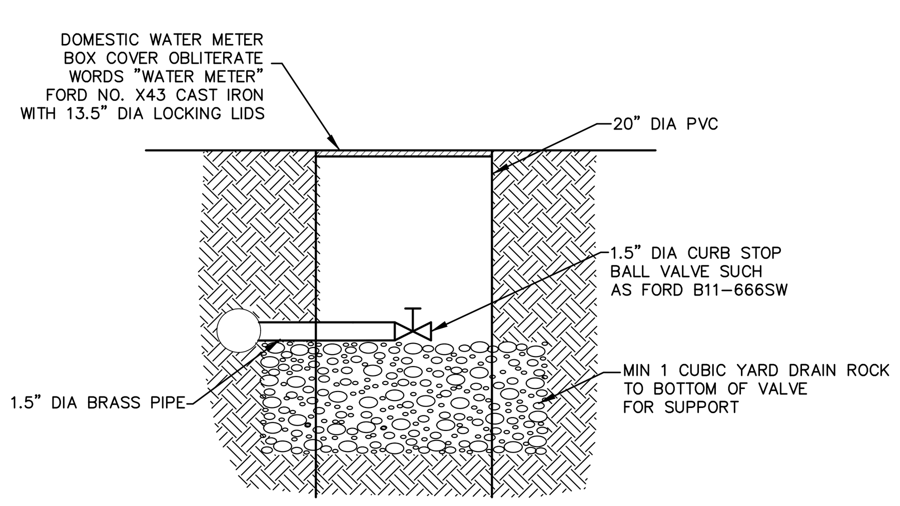
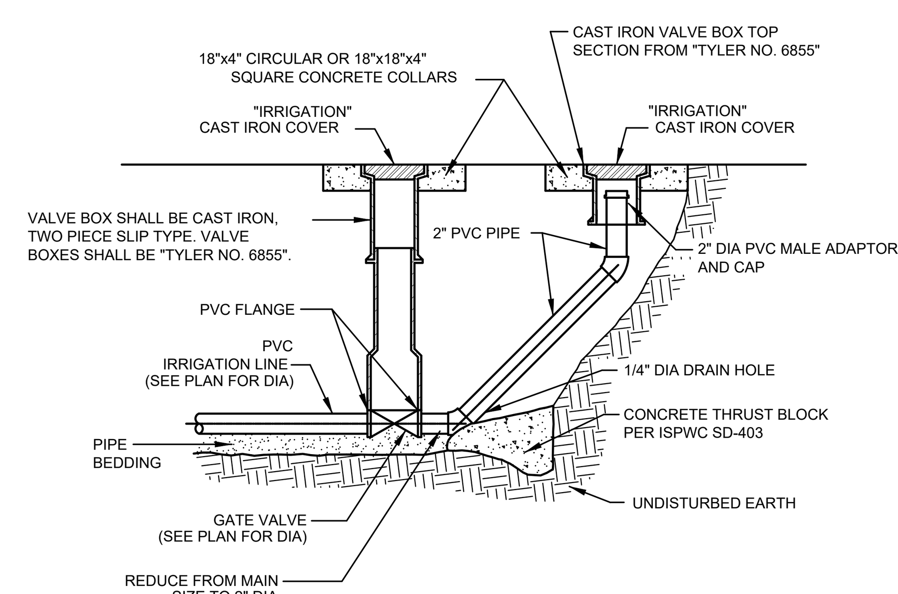
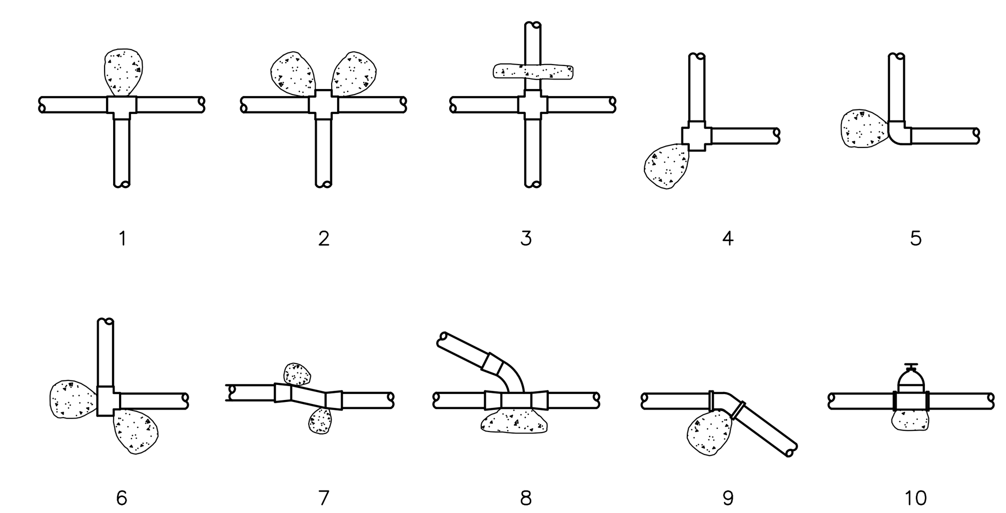
AIR RELEASE DETAIL
SCALE: N.T.S.
D / C7.1



IRRIGATION DRAIN DETAIL
SCALE: N.T.S.
E / C7.2



IRRIGATION BLOWOFF
SCALE: N.T.S.
F / C7.2



1. THROUGH LINE CONNECTION, TEE
2. THROUGH LINE CONNECTION, CROSS USED AS TEE
3. CHANGE IN LINE SIZE WITH REDUCER
4. DIRECTION CHANGE, CROSS USED AS ELBOW
5. DIRECTION CHANGE 90° ELBOW
6. DIRECTION CHANGE, TEE USED AS ELBOW
7. DIRECTION CHANGE
8. THROUGH LINE CONNECTION, WYE
9. VERTICAL DIRECTION CHANGE, BEND ANCHOR. SEE NOTE BELOW
10. VALVE ANCHOR, SEE NOTE BELOW

NOTES:

1. IF THRUST, DUE TO HIGH PRESSURE, ARE EXPECTED, ANCHOR VALVES AS SHOWN IN DETAIL #10, AT VERTICAL BENDS, ANCHOR TO RESIST OUTWARD THRUSTS.
2. SEE ISPWC SD-403 FOR MORE INFORMATION.

CONNECTION / THRUST BLOCK DETAILS
SCALE: N.T.S.
F / C7.2

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REVISIONS	
C	07/23/21-CONTRACTOR
D	01/17/22-NHD/COUNTY

PROFESSIONAL ENGINEER, 10071, 01/17/2022, STATE OF IDAHO, LANCE WARNICK

ASPEN ENGINEERS
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CIVIL IMPROVEMENT DRAWINGS FOR
RED TAIL ESTATES
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3901 & 4001 E. LEWIS LN
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DRAWN	SCALE
TCW	SHOWN
CHECKED	REVISION
LBW	D

DATE: 01/17/2021

PROJECT: 20061

TITLE: RED TAIL ESTATES SUBDIVISION NO. 3

IRRIGATION DETAILS (2 OF 2)

SHEET: C7.2

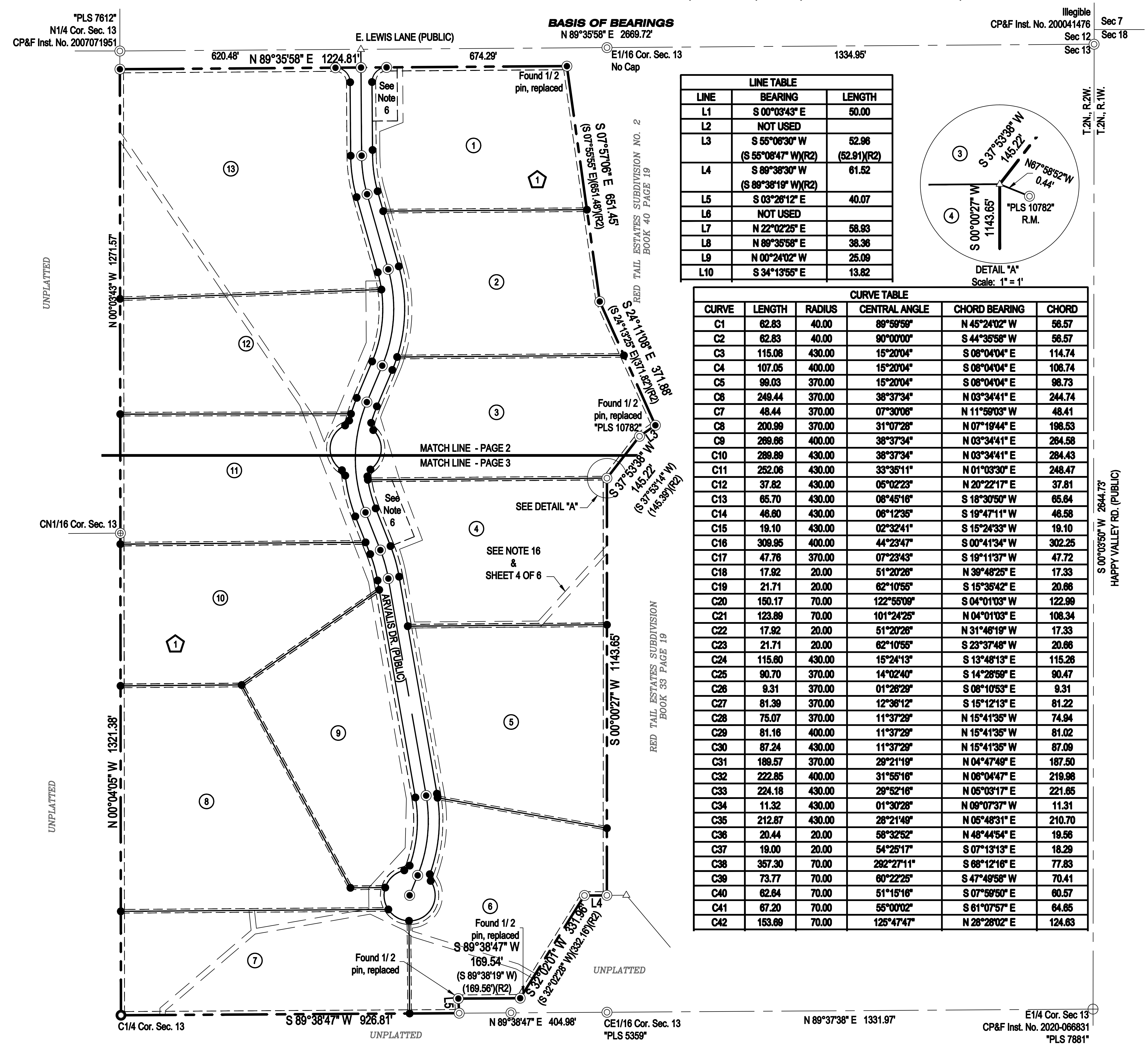
SURVEYOR'S NARRITIVE:

This Plat for Corsberg Land, LLC, was to establish a Subdivision of the referenced parcels of land. All found monuments are referenced and new monuments to represt the alignment of the parcels are marked. The boundary was established by retracing record documents, said documents being the Plat of Red Tail Estates Subdivision No. 2, Records of Canyon County, Book 40, Page 19, and Record of Survey Inst. No. 2017-024573, Records of Canyon County.

PLAT OF

RED TAIL ESTATES SUBDIVISION NO. 3

BEING A REPLAT OF A PORTION OF LOT 6, BLOCK 1, RED TAIL ESTATES SUBDIVISION NO. 2, RECORDS OF CANYON COUNTY, BOOK 40, PAGE 19, AND A PORTION OF THE W1/2 NE1/4 OF SECTION 13, T. 2 N., R. 2 W., B.M., CANYON COUNTY, IDAHO



LINE TABLE		
LINE	BEARING	LENGTH
L1	S 00°03'43" E	50.00
L2	NOT USED	
L3	S 55°06'30" W (S 55°08'47" W)(R2)	52.96 (52.91)(R2)
L4	S 89°38'30" W (S 89°38'19" W)(R2)	61.52
L5	S 03°26'12" E	40.07
L6	NOT USED	
L7	N 22°02'25" E	58.93
L8	N 89°35'58" E	38.36
L9	N 00°24'02" W	25.09
L10	S 34°13'55" E	13.82

CURVE TABLE					
CURVE	LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING	CHORD
C1	62.83	40.00	89°59'59"	N 45°24'02" W	56.57
C2	62.83	40.00	90°00'00"	S 44°35'58" W	56.57
C3	115.08	430.00	15°20'04"	S 08°04'04" E	114.74
C4	107.05	400.00	15°20'04"	S 08°04'04" E	106.74
C5	99.03	370.00	15°20'04"	S 08°04'04" E	98.73
C6	249.44	370.00	38°37'34"	N 03°34'41" E	244.74
C7	48.44	370.00	07°30'06"	N 11°59'03" W	48.41
C8	200.99	370.00	31°07'28"	N 07°19'44" E	198.53
C9	269.66	400.00	38°37'34"	N 03°34'41" E	264.58
C10	289.89	430.00	38°37'34"	N 03°34'41" E	284.43
C11	252.06	430.00	33°35'11"	N 01°03'30" E	248.47
C12	37.82	430.00	05°02'23"	N 20°22'17" E	37.81
C13	65.70	430.00	08°45'16"	S 18°30'50" W	65.64
C14	46.60	430.00	06°12'35"	S 19°47'11" W	46.58
C15	19.10	430.00	02°32'41"	S 15°24'33" W	19.10
C16	309.95	400.00	44°23'47"	S 00°41'34" W	302.25
C17	47.76	370.00	07°23'43"	S 19°11'37" W	47.72
C18	17.92	20.00	51°20'26"	N 39°48'25" E	17.33
C19	21.71	20.00	62°10'55"	S 15°35'42" E	20.66
C20	150.17	70.00	122°55'09"	S 04°01'03" W	122.99
C21	123.89	70.00	101°24'25"	N 04°01'03" E	108.34
C22	17.92	20.00	51°20'26"	N 31°46'19" W	17.33
C23	21.71	20.00	62°10'55"	S 23°37'48" W	20.66
C24	115.60	430.00	15°24'13"	S 13°48'13" E	115.26
C25	90.70	370.00	14°02'40"	S 14°28'59" E	90.47
C26	9.31	370.00	01°26'29"	S 08°10'53" E	9.31
C27	81.39	370.00	12°36'12"	S 15°12'13" E	81.22
C28	75.07	370.00	11°37'29"	N 15°41'35" W	74.94
C29	81.16	400.00	11°37'29"	N 15°41'35" W	81.02
C30	87.24	430.00	11°37'29"	N 15°41'35" W	87.09
C31	189.57	370.00	29°21'19"	N 04°47'49" E	187.50
C32	222.85	400.00	31°55'16"	N 06°04'47" E	219.98
C33	224.18	430.00	29°52'16"	N 05°03'17" E	221.65
C34	11.32	430.00	01°30'28"	N 09°07'37" W	11.31
C35	212.87	430.00	28°21'49"	N 05°48'31" E	210.70
C36	20.44	20.00	58°32'52"	N 48°44'54" E	19.56
C37	19.00	20.00	54°25'17"	S 07°13'13" E	18.29
C38	357.30	70.00	292°27'11"	S 68°12'16" E	77.83
C39	73.77	70.00	60°22'25"	S 47°49'58" W	70.41
C40	62.64	70.00	51°15'16"	S 07°59'50" E	60.57
C41	67.20	70.00	55°00'02"	S 61°07'57" E	64.65
C42	153.69	70.00	125°47'47"	N 28°28'02" E	124.63

LEGEND

- Calculated Point
- Found aluminum cap monument
- Found 5/8 inch dia. iron pin
- Set 5/8 inch dia. x 24 inch iron pin w/ plastic cap "PLS 7732"
- Found 1/2 inch dia. iron pin
- Set 1/2 inch dia. x 24 inch iron pin w/ plastic cap "PLS 7732"
- Set 1/2 inch dia. x 24 inch iron pin w/ plastic cap "ESMT COR PLS 7732"
- Found 1 inch dia iron pipe
- Found axle
- R.M. Reference Monument
- Block number
- Lot number
- Boundary Line
- Section Line
- Property Line
- Easement Line
- Lot Line
- Centerline Line
- Irrigation Easement

0 100 200 400

Scale: 1" = 200'

NOTES:

1. Any Resubdivision of this Plat shall Comply with the Applicable Zoning Regulations in effect at that time.
2. Minimum Building Setbacks shall be in Accordance with the Canyon County Applicable Zoning and Subdivision Regulations at the time of issuance of Individual Building Permits or as Specifically Approved and/or required, or as shown on this Plat.
3. Sewage disposal shall be provided by individual septic systems. All septic systems shall be approved by the Southwest District Health Department and must be sized in accordance with Southwest District Health Department Rules and Regulations.
4. Water supply shall be provided by Individual Wells.
5. This property is located in the Nampa-Meridian Irrigation District and has surface water rights for irrigation use.
6. Lot 4 and Lot 13, Block 1 are subject to a Stormwater Retention Area Easement as shown hereon.
7. A Permanent Easement for Public Utilities, Drainage and Pressure Irrigation is Hereby Designated as follows, unless otherwise Dimensioned:
   a) 10' along Subdivision Boundary as Plotted Hereon.
   b) 5' along each side of the Interior Lot Lines as Plotted Hereon.
   c) All Lot Lines Common to any Public Right of Way and Rear Lot Lines are hereby designated as having a Permanent Ten foot wide (10') Easement as Plotted Hereon.

   If any Lot Lines are Adjusted, the Easement shall also be Adjusted Accordingly , Providing that Facilities have not been Installed within the Easement.
8. Building Setbacks and Dimensional Standards in this Subdivision Shall Conform to the Applicable Zoning Regulations at the Time of Resubdivision, or as Allowed by Current Zoning and Regulations set forth by the Canyon County.
9. This Development Recognizes Section 22-4503 of the Idaho Code, Right of Farm Act, which States: No agricultural operation, agricultural facility or expansion thereof shall be or become a nuisance, private or public, by any changed conditions in or about the surrounding nonagricultural activities after it has been in operation for more than one (1) year, when the operation, facility or expansion was not a nuisance at the time it began or was constructed. The provisions of this section shall not apply when a nuisance results from the improper or negligent operation of an agricultural operation, agricultural facility or expansion thereof.
10. No Direct Lot Access to E. Lewis Lane is allowed.
11. The Homeowner's Association or adjacent property owner is responsible for maintaining any and all amenities (lawns, sprinklers, sidewalks, landscaping, etc.) approved by the District to be within the public right-of-way.
12. The Homeowner's Association, underlying property owner or adjacent property owner is responsible for all storm drainage facilities outside the public right-of-way, including all routine and heavy maintenance.
13. Storm drainage facilities outside the public Right-of-Way shall be the responsibility of the Homewoner's Association or property owner on which the storm drainage facility is constructed if no Homeowner's Association exists. Responsibility for storm drainage facilities includes all maintenance both routine and non-routine.
14. All Lots along a Section line are encumbered by a 70 foot wide setback from the Boundary of said Section line. No permanent structures may be constructed within that setback.
15. Nampa Highway District No. 1 does hereby accept this plat, and the dedicated public streets, Highways, and Rights-of-Way as are depicted on this plat, in accordance with the provisions of I.C. 50-1312.
16. An easement is provided for all remaining irrigation pipes as shown hereon.

REFERENCE DATA

- R1) Red Tail Estates Subdivision No. 1, Bk 33, Pg 19
- R2) Red Tail Estates Subdivision No. 2, Bk 40, Pg 19
- R3) Record of Survey, Inst. No. 2017-024573

PROFESSIONAL LAND SURVEYOR
REGISTERED
7732
01/31/2022
STATE OF IDAHO
RICHARD A. GRAY

COMPASS LAND SURVEYING, PLLC

623 11th Avenue South
Nampa, ID 83651

Office: (208) 442-0115
Fax: (208) 327-2106

JN 1621

01/31/2022

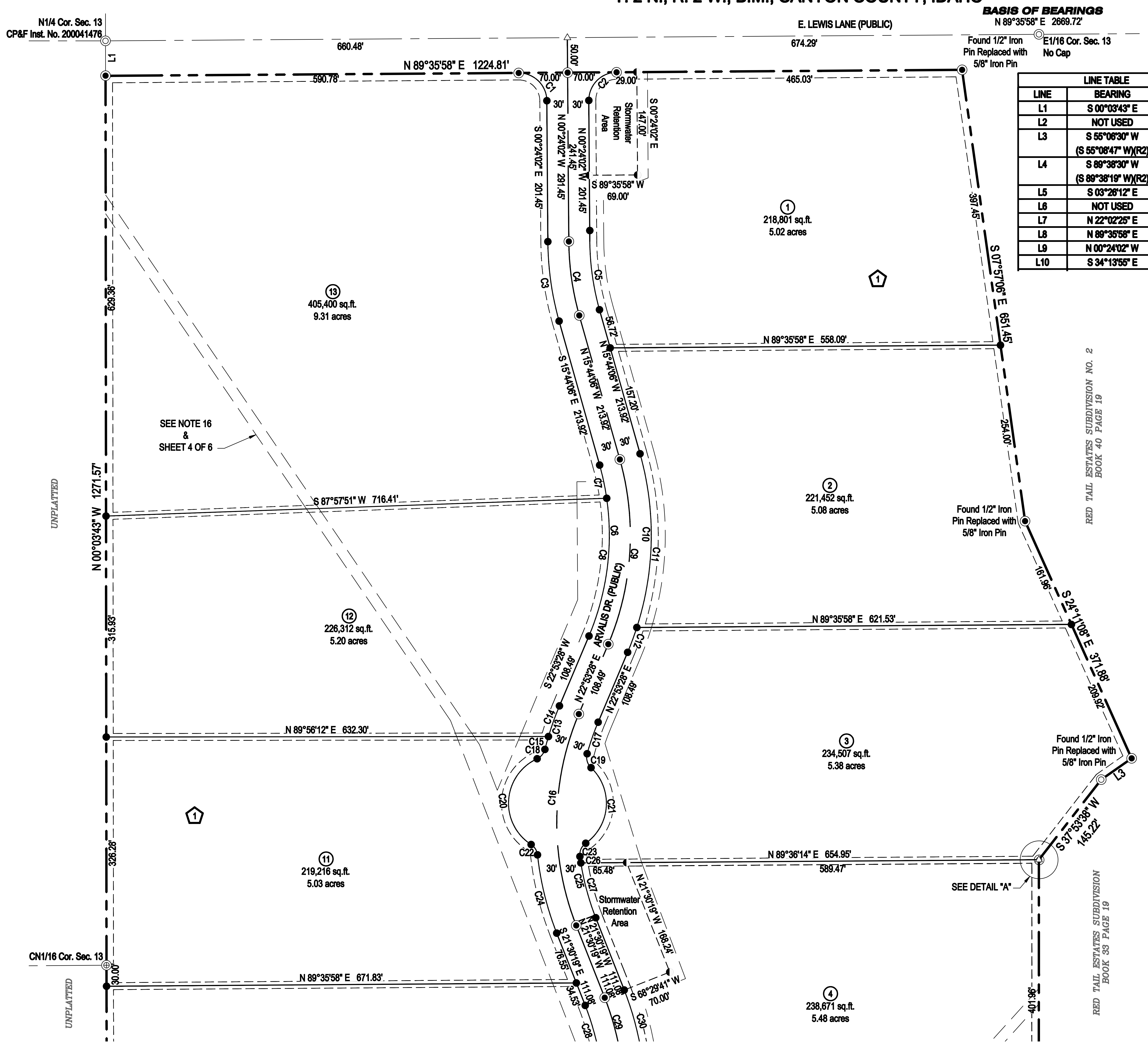
SHEET 1 OF 6

REVISIONS	No.	BY	DATE	DESCRIPTION
	1	AW	01/26/22	County Surveyor & HWY Dept. Comments

PLAT OF

RED TAIL ESTATES SUBDIVISION NO. 3

BEING A REPLAT OF A PORTION OF LOT 6, BLOCK 1, RED TAIL ESTATES SUBDIVISION NO. 2, RECORDS OF CANYON COUNTY, BOOK 40, PAGE 19, AND A PORTION OF THE W1/2 NE1/4 OF SECTION 13, T. 2 N., R. 2 W., B.M., CANYON COUNTY, IDAHO



LINE TABLE		
LINE	BEARING	LENGTH
L1	S 00°03'43" E	50.00
L2	NOT USED	
L3	S 55°06'30" W (S 55°08'47" W)(R2)	52.96 (52.91)(R2)
L4	S 89°38'30" W (S 89°38'19" W)(R2)	61.52
L5	S 03°26'12" E	40.07
L6	NOT USED	
L7	N 22°02'25" E	58.93
L8	N 89°35'58" E	38.36
L9	N 00°24'02" W	25.09
L10	S 34°13'55" E	13.82

0 50 100 200

Scale: 1" = 100'

LEGEND

- Calculated Point
- Found aluminum cap monument
- Found 5/8 inch dia. iron pin
- Set 5/8 inch dia. x 24 inch iron pin w/ plastic cap "PLS 7732"
- Found 1/2 inch dia. iron pin
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- Set 1/2 inch dia. x 24 inch iron pin w/ plastic cap "ESMT COR PLS 7732"
- Found 1 inch dia iron pipe
- Found axle
- R.M. Reference Monument
- Block number
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CURVE TABLE					
CURVE	LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING	CHORD
C1	62.83	40.00	89°59'59"	N 45°24'02" W	56.57
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C4	107.05	400.00	15°20'04"	S 08°04'04" E	106.74
C5	99.03	370.00	15°20'04"	S 08°04'04" E	98.73
C6	249.44	370.00	38°37'34"	N 03°34'41" E	244.74
C7	48.44	370.00	07°30'06"	N 11°59'03" W	48.41
C8	200.99	370.00	31°07'28"	N 07°19'44" E	198.53
C9	269.66	400.00	38°37'34"	N 03°34'41" E	264.58
C10	289.89	430.00	38°37'34"	N 03°34'41" E	284.43
C11	252.06	430.00	33°35'11"	N 01°03'30" E	248.47
C12	37.82	430.00	05°02'23"	N 20°22'17" E	37.81
C13	65.70	430.00	08°45'16"	S 18°30'50" W	65.64
C14	46.60	430.00	06°12'35"	S 19°47'11" W	46.58
C15	19.10	430.00	02°32'41"	S 15°24'33" W	19.10
C16	309.95	400.00	44°23'47"	S 00°41'34" W	302.25
C17	47.76	370.00	07°23'43"	S 19°11'37" W	47.72
C18	17.92	20.00	51°20'26"	N 39°48'25" E	17.33
C19	21.71	20.00	62°10'55"	S 15°35'42" E	20.66
C20	150.17	70.00	122°55'09"	S 04°01'03" W	122.99
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C27	81.39	370.00	12°36'12"	S 15°12'13" E	81.22
C28	75.07	370.00	11°37'29"	N 15°41'35" W	74.94
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C30	87.24	430.00	11°37'29"	N 15°41'35" W	87.09

COMPASS LAND SURVEYING, PLLC

623 11th Avenue South Nampa, ID 83651

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JN 1621 01/31/2022

PROFESSIONAL LAND SURVEYOR
REGISTERED
7732
01/31/2022
STATE OF IDAHO
RICHARD A. GRAY

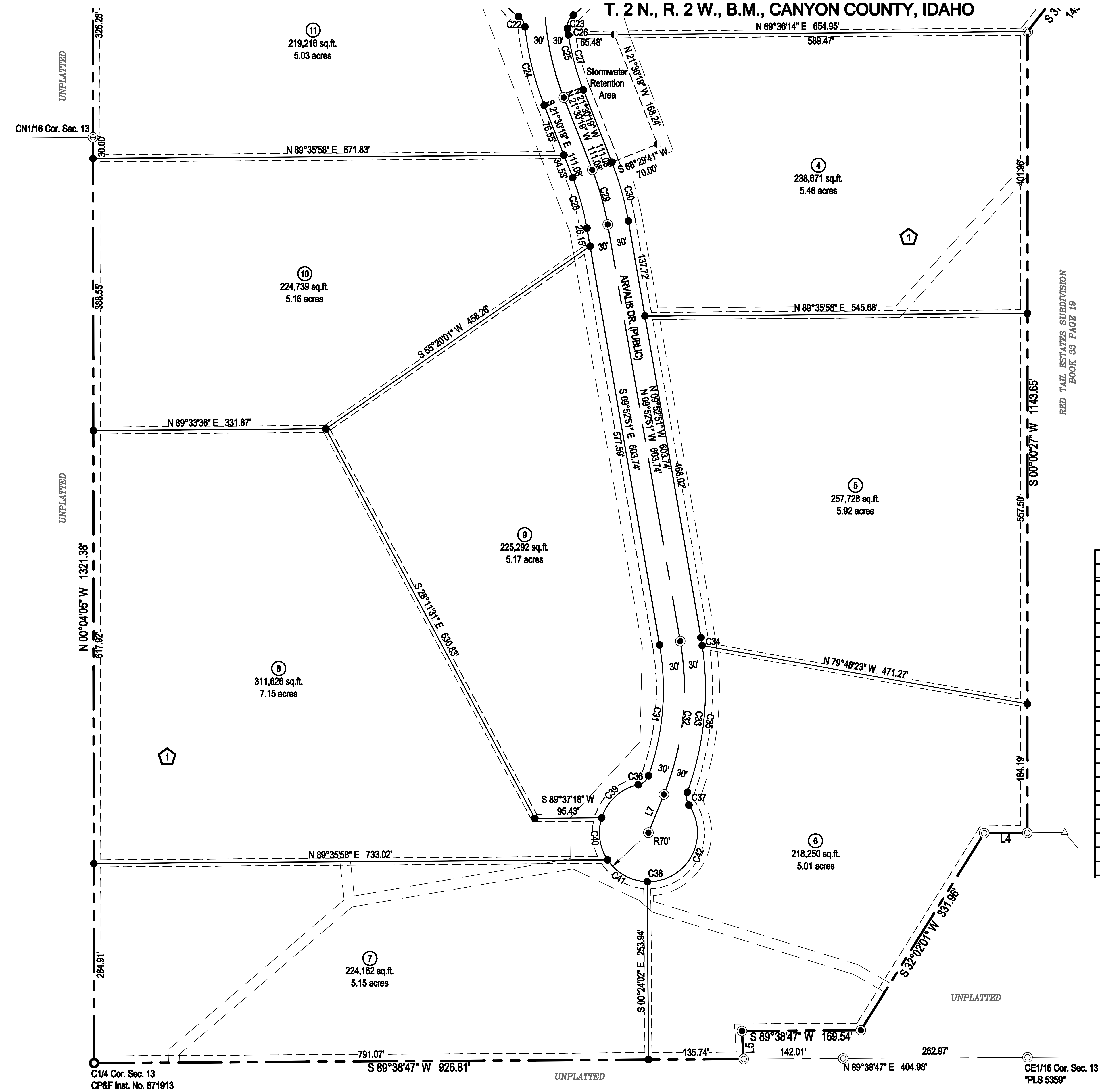
SHEET 2 OF 6

REVISIONS			
No.	BY	DATE	DESCRIPTION

PLAT OF

RED TAIL ESTATES SUBDIVISION NO. 3

BEING A REPLAT OF A PORTION OF LOT 6, BLOCK 1, RED TAIL ESTATES SUBDIVISION NO. 2, RECORDS OF CANYON COUNTY, BOOK 40, PAGE 19, AND A PORTION OF THE W1/2 NE1/4 OF SECTION 13, T. 2 N., R. 2 W., B.M., CANYON COUNTY, IDAHO



Scale: 1" = 100'

LEGEND

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L4	S 89°38'30" W (S 89°38'19" W)(R2)	61.52
L5	S 03°26'12" E	40.07
L6	NOT USED	
L7	N 22°02'25" E	58.93
L8	N 89°35'58" E	38.36
L9	N 00°24'02" W	25.09
L10	S 34°13'55" E	13.82

CURVE TABLE

CURVE	LENGTH	RADIUS	CENTRAL ANGLE	CHORD BEARING	CHORD
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C32	222.85	400.00	31°55'16"	N 06°04'47" E	219.98
C33	224.18	430.00	29°52'16"	N 05°03'17" E	221.65
C34	11.32	430.00	01°30'28"	N 09°07'37" W	11.31
C35	212.87	430.00	28°21'49"	N 05°48'31" E	210.70
C36	20.44	20.00	58°32'52"	N 48°44'54" E	19.56
C37	19.00	20.00	54°25'17"	S 07°13'13" E	18.29
C38	357.30	70.00	292°27'11"	S 68°12'16" E	77.83
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C40	62.64	70.00	51°15'16"	S 07°59'50" E	60.57
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C42	153.69	70.00	125°47'47"	N 28°28'02" E	124.63

COMPASS LAND SURVEYING, PLLC
623 11th Avenue South Nampa, ID 83651
Office: (208) 442-0115 Fax: (208) 327-2106
JN 1621 01/31/2022

PROFESSIONAL LAND SURVEYOR REGISTERED 7732 01/31/2022 STATE OF IDAHO RICHARD A. GRAY

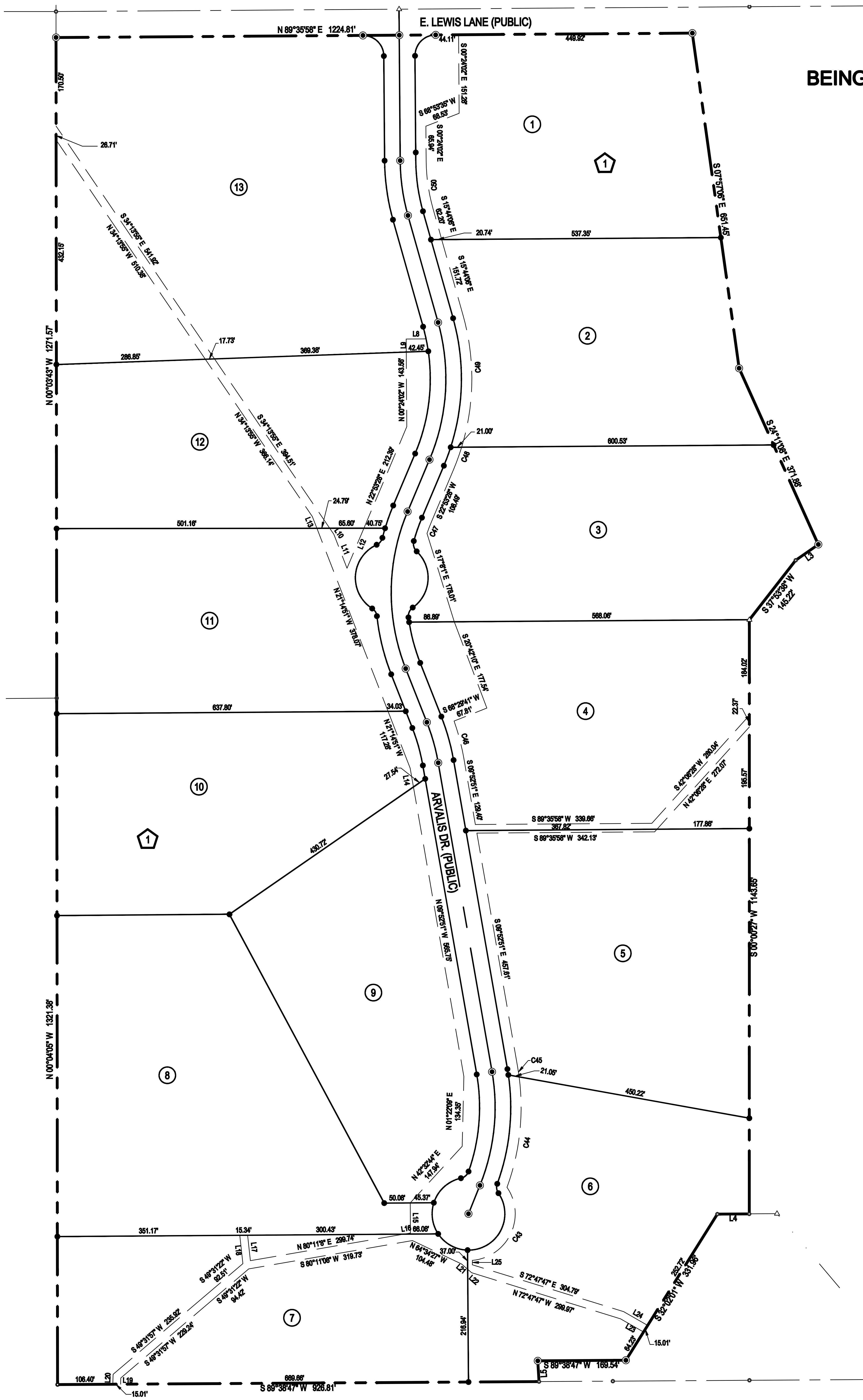
SHEET 3 OF 6

REVISIONS	No.	BY	DATE	DESCRIPTION

PLAT OF

RED TAIL ESTATES SUBDIVISION NO. 3

BEING A REPLAT OF A PORTION OF LOT 6, BLOCK 1, RED TAIL ESTATES SUBDIVISION NO. 2, RECORDS OF CANYON COUNTY, BOOK 40, PAGE 19, AND A PORTION OF THE W1/2 NE1/4 OF SECTION 13, T. 2 N., R. 2 W., B.M., CANYON COUNTY, IDAHO



0 80 160 320

Scale: 1" = 160'

LEGEND

- △ Calculated Point
- Found aluminum cap monument
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C4	107.05	400.00	15°20'04"	S 08°04'04" E	106.74
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C7	48.44	370.00	07°30'06"	N 11°59'03" W	48.41
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C9	269.66	400.00	38°37'34"	N 03°34'41" E	264.58
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C12	37.82	430.00	05°02'23"	N 20°22'17" E	37.81
C13	65.70	430.00	08°45'16"	S 18°30'50" W	65.64
C14	46.60	430.00	06°12'35"	S 19°47'11" W	46.58
C15	19.10	430.00	02°32'41"	S 15°24'33" W	19.10
C16	309.95	400.00	44°23'47"	S 00°41'34" W	302.25
C17	47.76	370.00	07°23'43"	S 19°11'37" W	47.72
C18	17.92	20.00	51°20'26"	N 39°48'25" E	17.33
C19	21.71	20.00	62°10'55"	S 15°35'42" E	20.66
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C41	67.20	70.00	55°00'02"	S 61°07'57" E	64.65
C42	153.69	70.00	125°47'47"	N 28°28'02" E	124.63
C43	187.99	90.00	119°40'18"	N 25°24'14" E	155.63
C44	216.06	450.00	27°30'34"	N 06°14'06" E	213.99
C45	18.54	450.00	02°21'39"	N 08°42'01" W	18.54
C46	74.30	450.00	09°27'35"	N 14°36'38" W	74.21
C47	24.29	350.00	03°58'36"	S 20°54'10" W	24.29
C48	46.16	450.00	05°52'39"	N 19°57'09" E	46.14
C49	257.21	450.00	32°44'55"	N 00°38'22" E	253.72
C50	93.67	350.00	15°20'04"	S 08°04'04" E	93.39

LINE TABLE		
LINE	BEARING	LENGTH
L1	S 00°03'43" E	50.00
L2	NOT USED	
L3	S 55°06'30" W (S 55°08'47" W)(R2)	52.96 (52.91)(R2)
L4	S 89°38'30" W (S 89°38'19" W)(R2)	61.52
L5	S 03°26'12" E	40.07
L6	NOT USED	
L7	N 22°02'25" E	58.93
L8	N 89°35'58" E	38.36
L9	N 00°24'02" W	25.09
L10	S 34°13'55" E	13.82
L11	S 21°14'51" E	70.08
L12	N 22°53'28" E	83.39
L13	N 21°14'51" W	24.52
L14	N 09°52'51" W	36.70
L15	N 00°24'37" W	57.95
L16	N 80°11'08" E	12.90
L17	S 06°12'56" E	49.28
L18	S 06°12'56" E	54.83
L19	S 01°30'38" W	11.87
L20	S 01°30'38" W	19.04
L21	N 49°12'25" W	16.09
L22	N 49°12'25" W	9.94
L23	N 60°12'30" W	51.14
L24	S 60°12'30" E	53.39
L25	S 00°24'02" E	8.52

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JN 1621

01/31/2022

SHEET 4 OF 6

REVISIONS			
No.	BY	DATE	DESCRIPTION

PLAT OF

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CERTIFICATE OF OWNERS

Known all men by these presents that Audrey R. Corsberg, Manager, Corsberg Land LLC Does Hereby Certify that Corsberg Land LLC is the owner of the Real Parcel of Land Hereinafter Described and that it is her Intention to include said Real Property in this Subdivision Plat.

The following Describes a Parcel of Land being a parcel of land being a portion of the W 1/2 NE 1/4 of Section 13, T. 2 N., R.2 W., B.M. and also being a portion of Lot 6, Block 1 of that certain plat recorded as Red Tail Estates Subdivision No. 2, as on file in Book 40 of Plats at Page 19 in the Office of the Recorder of Canyon County, Idaho, recorded as Instrument No. 2007058130 more particularly described as follows:

Commencing at a found 5/8 inch diameter iron pin stamped "PLS 7612" marking the NW corner of said NE 1/4, (North 1/4 corner of said Section 13), from which a found 5/8 inch diameter iron pin with illegible cap marking the NE corner of said NE 1/4, (Section corner common to Sections 12 and 13) bears N. 89 35' 58" E., a distance of 2669.72 feet;
Thence along the Westerly boundary of said W 1/2 NE 1/4, S. 00 03' 43" E., a distance of 50.00 feet to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732" marking the POINT OF BEGINNING and southerly right of way of E. Lewis Lane;

Thence leaving said Westerly boundary and along said right of way, which is 50.00 feet south of and parallel with the Northerly boundary of said W 1/2 NE 1/4, N. 89 35' 58" E., a distance of 1224.80 feet to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732" marking the Easterly boundary of said Lot 6 Block 1 of Red Tail Estates Subdivision No. 2;
Thence along the Easterly boundary of said Lot 6 Block 1 the following courses and distances:
Thence S. 07 57' 06" E., a distance of 651.45 feet, (formerly S. 07 55' 55" E., a distance of 651.48 feet), to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732";
Thence S. 24 11' 08" E., a distance of 371.88 feet, (formerly S. 24 13' 25" E., a distance of 371.82 feet), to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732";
Thence S. 55 06' 30" W., a distance of 52.96 feet, (formerly S. 55 08' 47" W., a distance of 52.91 feet), to a found 5/8 inch diameter iron pin with stamped "PLS 10782";
Thence S. 37 53' 38" W., a distance of 145.22 feet, (formerly S. 37 53' 14" W., a distance of 145.39 feet), to a point, from which a found 5/8 inch diameter iron pin Reference Monument stamped "PLS 10782", bears S. 67 58' 52" e., a distance of 145.22 feet;
Thence continuing along said Easterly boundary and its prolongation, S. 00 00' 27" W., a distance of 1143.65 feet to a found 5/8 inch diameter iron pin stamped " CLS PLS 7732" marking the Southerly boundary of said Lot 6 Block 1;
Thence along the Southerly boundary of said Lot 6 Block 1, S. 89 38' 30" W., (formerly S. 89 38' 19" W.), a distance of 61.52 feet to a found 5/8 inch diameter iron pin stamped "PLS 10782";
Thence continuing along the Southerly boundary of said Lot 6 Block 1, S. 32 02' 01" W., a distance of 331.96 feet,(formerly S. 32 02' 28" W., a distance of 332.16 feet), to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732";
Thence continuing along the Southerly boundary of said Lot 6 Block 1, S. 89 38' 47" W., a distance of 169.54 feet, (formerly S. 89 38' 19" W., a distance of 169.56 feet), to a set 5/8 inch diameter iron pin stamped " CLS PLS 7732";
Thence continuing along the Southerly boundary of said Lot 6 Block 1, S. 03 26' 12" E., a distance of 40.07 feet, (formerly S. 03 26' 12" E., a distance of 40.07 feet), to a found 5/8 inch diameter iron pin stamped "PLS 10782" marking the Southerly boundary of said W 1/2 NE 1/4;
Thence leaving said Southerly boundary and along the Southerly boundary of said W 1/2 NE 1/4, S. 89 38' 47" W., a distance of 926.81 feet to a found axle marking the Southwest corner of said W 1/2 NE 1/4, (Center 1/4 corner);
Thence along the Westerly boundary of said W 1/2 NE 1/4, N. 00 04' 05" W., a distance of 1321.38 feet to a found 1 inch diameter iron pipe marking the Southwest corner of the NW 1/4 NW 1/4, (Center north 1/16 corner);
Thence continuing along the Westerly boundary of said W 1/2 NE 1/4, N. 00 03' 43" W., a distance of 1271.57 feet to the POINT OF BEGINNING.

This parcel contains 77.71 acres more or less.

The Public Street as shown on this Plat is Dedicated to the Public and will be maintained by Nampa Highway District No. 1. The usage of said Public Street is hereby Perpetually Reserved for Public Usage.

The Easements as shown on this Plat are not Dedicated to the Public, however the right to use said Easements is hereby Perpetually Reserved for Public Utilities and such other uses as Designated within this Plat and no Permanent Structures are to be erected within the lines of said Easements.

Audrey R. Corsberg   Date
Manager
Corsberg Land LLC

ACKNOWLEDGMENT
STATE OF IDAHO } SS
COUNTY OF

On this___ day of ________ , in the year 20____, before me, the undersigned, a Notary Public in and for said State, personally appeared Audrey R. Corsberg, known or identified to me to be the manager of Corsberg Land, LLC that Executed the Instrument or the person who executed the instrument on behalf of said Limited Liability Company, and acknowledged to me that such Limited Liability Company executed the same.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

Notary Public for ____________________
Residing at ____________________
Commission expires ____________________

CERTIFICATE OF SURVEYOR

I, Richard A. Gray do hereby certify that I am a Professional Land Surveyor licensed by the State of Idaho, and that this Record of Survey correctly represents a survey made by me or under my direct supervision in conformance with Idaho Code: 31-2709, 1947 and accepted procedures of land surveying. I further certify that I have complied with Title 55, Chapter 16, Idaho Code.

PROFESSIONAL LAND SURVEYOR REGISTERED 7732 01/31/2022 STATE OF IDAHO RICHARD A. GRAY

Richard A. Gray   P.L.S. License No. 7732

COMPASS LAND SURVEYING, PLLC
623 11th Avenue South   Nampa, ID 83651
Office: (208) 442-0115   Fax: (208) 327-2106
JN 1621   01/31/2022

PLAT OF

RED TAIL ESTATES SUBDIVISION NO. 3

BEING A REPLAT OF A PORTION OF LOT 6, BLOCK 1, RED TAIL ESTATES SUBDIVISION NO. 2, RECORDS OF CANYON COUNTY, BOOK 40, PAGE 19, AND A PORTION OF THE W1/2 NE1/4 OF SECTION 13, T. 2 N., R. 2 W., B.M., CANYON COUNTY, IDAHO

APPROVAL OF CANYON COUNTY COMMISSIONERS

I, the Undersigned, Chairman of Canyon County Commissioners, Canyon County, Idaho, do hereby certify that at a regular meeting of the Commissioners held on the _____ day of __________________, in the year of 20____ , this plat was duly accepted and approved.

Chairman   Date

CERTIFICATE OF HIGHWAY DISTRICT

Nampa Highway District No. 1 does hereby accept this plat, and the dedicated public streets, highways and rights-of-way as are depicted on this plat, in accordance with the provisions of I.C. 50-1312.

Highway District Chairman   Date

CERTIFICATE OF COUNTY SURVEYOR

I, the undersigned, Professional Land Surveyor, in and for Canyon County, Idaho, do hereby certify that I have checked this Plat, and that it complies with the State of Idaho Code relating to Plats and Surveys.

Canyon County Surveyor   Date

CERTIFICATE OF COUNTY TREASURER

I, the undersigned, County Treasurer in and for the County of Canyon, State of Idaho, per the requirements of I.C. 50-1308, do hereby certify that any and all current and/or delinquent County Property Taxes for the property included in this proposed subdivision have been paid in full.
This certificate is valid for the next thirty (30) days only.

County Treasurer   Date

APPROVAL OF SOUTHWEST DISTRICT HEALTH DEPARTMENT

Sanitary restrictions as required by Idaho Code, Title 50, Chapter 13 have been satisfied. Sanitary restrictions may be reimposed, in accordance with Section 50-1326, Idaho Code, by the issuance of a certificate of disapproval.

Health District Signature   Date

CERTIFICATE OF THE BOARD OF COMMISSIONERS

I, the Undersigned, hereby certify that this Subdivision Plat has been accepted and approved this _____ day of ___________ ,20____ by the Board of Commissioners of Canyon County, Idaho.

Chairperson   Date

PROFESSIONAL LAND SURVEYOR
REGISTERED
7732
01/31/2022
STATE OF IDAHO
RICHARD A. GRAY

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Office: (208) 442-0115 Fax: (208) 327-2106
JN 1621 01/31/2022