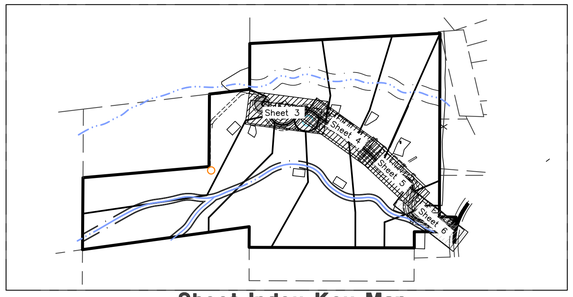
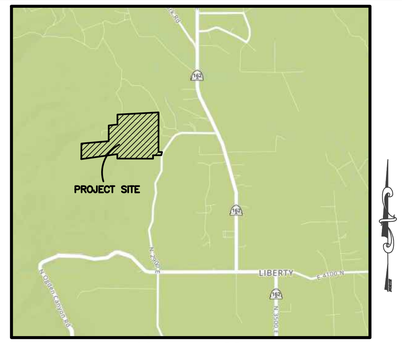
Project Narrative/Notes/Revisions

1. 08/21/2023 ZD – COMPLETED DESIGN FOR CLIENT & COUNTY REVIEW.
2. 12/21/2023 ZD – CLIENT COMMENTS
3. 04/04/2024 ZD – COUNTY COMMENTS
4. 04/16/2024 ZD – REVISED CULDESAC
5. 05/16/2024 ZD – COUNTY COMMENTS



Sheet Index Key Map
NOT TO SCALE

ARROWLEAF
Improvement Plans
EDEN, WEBER COUNTY, UTAH
FEBUARY, 2023



Vicinity Map
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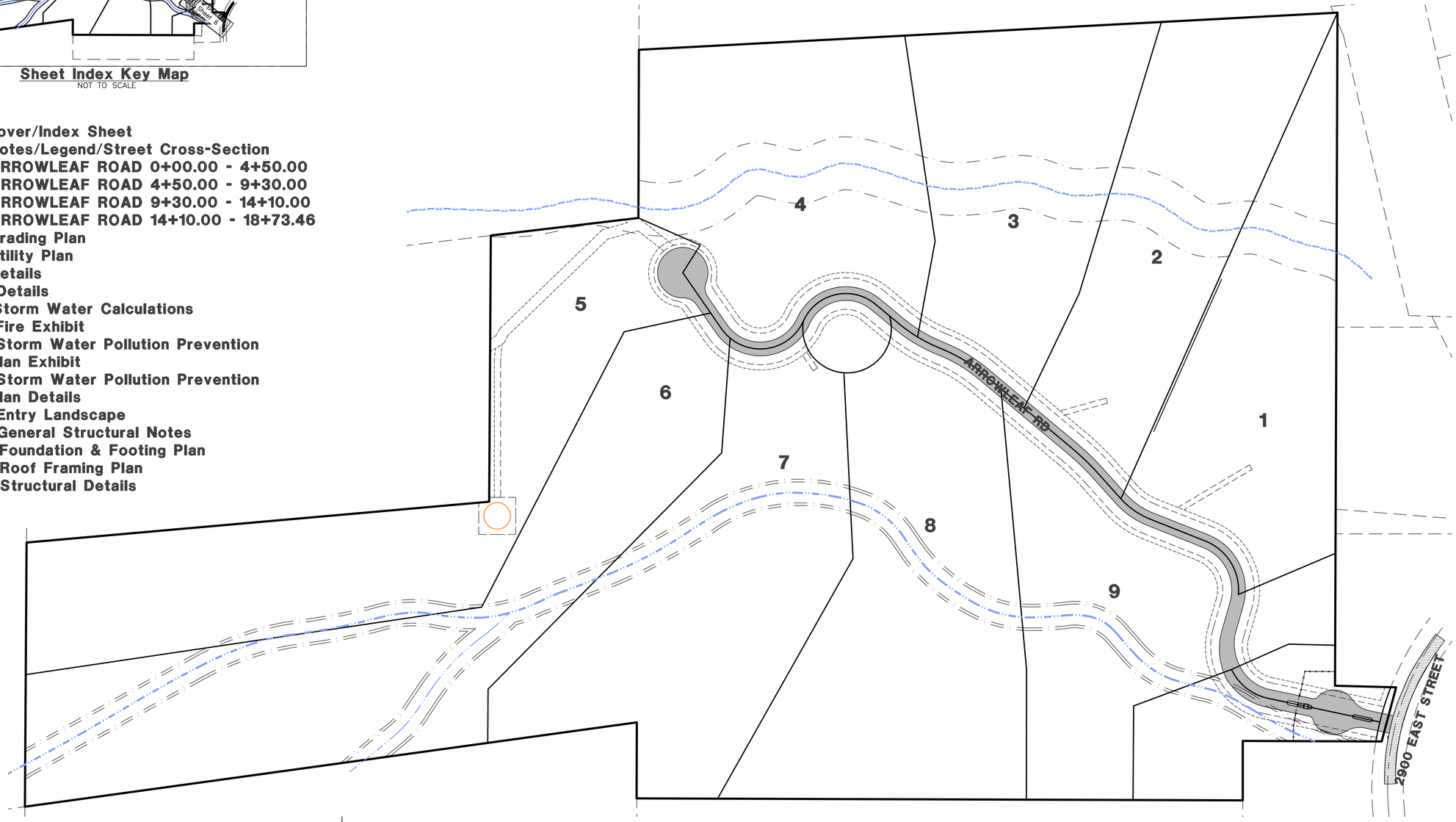
Sheet Index



Engineer's Notice To Contractors:
THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED FROM AVAILABLE INFORMATION PROVIDED BY OTHERS. THE LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR, SO THAT ANY NECESSARY ADJUSTMENT CAN BE MADE IN ALIGNMENT AND/OR GRADE OF THE PROPOSED IMPROVEMENT. THE CONTRACTOR IS REQUIRED TO CONTACT THE UTILITY COMPANIES AND TAKE DUE PRECAUTIONARY MEASURE TO PROTECT ANY UTILITY LINES SHOWN, AND ANY OTHER LINES OBTAINED BY THE CONTRACTOR'S RESEARCH, AND OTHERS NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

100 0 100 200 300
Scale: 1" = 100'

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

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REVISIONS

DATE	DESCRIPTION
03-18-24 ZD	County Comments
04-04-24 ZD	County Comments
04-16-24 ZD	Revised Culdesac
05-16-24 ZD	County Comments

Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Cover/Index Sheet

REGISTERED PROFESSIONAL ENGINEER
2338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

1
15 Total Sheets

General Notes:

1. ALL CONSTRUCTION MUST STRICTLY FOLLOW THE STANDARDS AND SPECIFICATIONS SET FORTH BY: GOVERNING UTILITY MUNICIPALITY, GOVERNING CITY OR COUNTY (IF UN-INCORPORATED), INDIVIDUAL PRODUCT MANUFACTURERS, AMERICAN PUBLIC WORKS ASSOCIATION (APWA), AND THE DESIGN ENGINEER. THE ORDER LISTED ABOVE IS ARRANGED BY SENIORITY. IF A CONSTRUCTION PRACTICE IS NOT SPECIFIED BY ANY OF THE LISTED SOURCES, CONTRACTOR MUST CONTACT DESIGN ENGINEER FOR DIRECTION.
2. CONTRACTOR TO STRICTLY FOLLOW GEOTECHNICAL RECOMMENDATIONS FOR THIS PROJECT. ALL GRADING INCLUDING BUT NOT LIMITED TO CUT, FILL, COMPACTION, ASPHALT SECTION, SUBBASE, TRENCH EXCAVATION/BACKFILL, SITE GRUBBING, RETAINING WALLS AND FOOTINGS MUST BE COORDINATED DIRECTLY WITH THE PROJECT GEOTECHNICAL ENGINEER.
3. TRAFFIC CONTROL, STRIPING & SIGNAGE TO CONFORM TO CURRENT GOVERNING AGENCIES TRANSPORTATION ENGINEER'S MANUAL AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
5. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.
6. AT ALL LOCATIONS WHERE EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.
7. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT, ADOPTED EDITION OF ADA ACCESSIBILITY GUIDELINES.
8. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED THOROUGHLY REVIEWED PLANS AND OTHER DOCUMENTS APPROVED BY ALL OF THE PERMITTING AUTHORITIES.
9. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND NOTIFYING ENGINEER OR INSPECTING AUTHORITY 48 HOURS IN ADVANCE OF COVERING UP ANY PHASE OF CONSTRUCTION REQUIRING OBSERVATION.
10. ANY WORK IN THE PUBLIC RIGHT-OF-WAY WILL REQUIRE PERMITS FROM THE APPROPRIATE CITY, COUNTY OR STATE AGENCY CONTROLLING THE ROAD, INCLUDING OBTAINING REQUIRED INSPECTIONS.
11. ALL DIMENSIONS, GRADES & UTILITY DESIGNS SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES.
12. CONTRACTOR MUST VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING AND BRING UP ANY QUESTIONS BEFOREHAND.
13. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH BY THE GEOTECHNICAL ENGINEER.
14. CATCH SLOPES SHALL BE GRADED AS SPECIFIED ON GRADING PLANS.
15. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLAGGING, CAUTION SIGNS, LIGHTS, BARRICADES, FLAGMEN, AND ALL OTHER DEVICES NECESSARY FOR PUBLIC SAFETY.
16. CONTRACTOR SHALL, AT THE TIME OF BIDDING AND THROUGHOUT THE PERIOD OF THE CONTRACT, BE LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED AND SHALL BE BONDABLE FOR AN AMOUNT EQUAL TO OR GREATER THAN THE AMOUNT BID AND TO DO THE TYPE OF WORK CONTEMPLATED IN THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL BE SKILLED AND REGULARLY ENGAGED IN THE GENERAL CLASS AND TYPE OF WORK CALLED FOR IN THE PLANS AND SPECIFICATIONS.
17. CONTRACTOR SHALL INSPECT THE SITE OF THE WORK PRIOR TO BIDDING TO SATISFY HIMSELF BY PERSONAL EXAMINATION OR BY SUCH OTHER MEANS AS HE MAY PREFER OF THE LOCATIONS OF THE PROPOSED WORK AND OF THE ACTUAL CONDITIONS OF AND AT THE SITE OF WORK. IF, DURING THE COURSE OF HIS EXAMINATION, A BIDDER FINDS FACTS OR CONDITIONS WHICH APPEAR TO HIM TO BE IN CONFLICT WITH THE LETTER OR SPIRIT OF THE PROJECT PLANS AND SPECIFICATIONS, HE SHALL CONTACT THE ENGINEER FOR ADDITIONAL INFORMATION AND EXPLANATION BEFORE SUBMITTING HIS BID. SUBMISSION OF A BID BY THE CONTRACTOR SHALL CONSTITUTE ACKNOWLEDGMENT THAT, IF AWARDED THE CONTRACT, HE HAS RELIED AND IS RELYING ON HIS OWN EXAMINATION OF (1) THE SITE OF THE WORK, (2) ACCESS TO THE SITE, AND (3) ALL OTHER DATA AND MATTERS REQUISITE TO THE FULFILLMENT OF THE WORK AND ON HIS OWN KNOWLEDGE OF EXISTING FACILITIES ON AND IN THE VICINITY OF THE SITE OF THE WORK TO BE CONSTRUCTED UNDER THIS CONTRACT. THE INFORMATION PROVIDED BY THE ENGINEER IS NOT INTENDED TO BE A SUBSTITUTE FOR, OR A SUPPLEMENT TO, THE INDEPENDENT VERIFICATION BY THE CONTRACTOR TO THE EXTENT SUCH INDEPENDENT INVESTIGATION OF SITE CONDITIONS IS DEEMED NECESSARY OR DESIRABLE BY THE CONTRACTOR. CONTRACTOR SHALL ACKNOWLEDGE THAT HE HAS NOT RELIED SOLELY UPON OWNER- OR ENGINEER-FURNISHED INFORMATION REGARDING SITE CONDITIONS IN PREPARING AND SUBMITTING HIS BID.
18. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL WATER, POWER, SANITARY FACILITIES AND TELEPHONE SERVICES AS REQUIRED FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
19. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OWNER, ENGINEER, AND/OR GOVERNING AGENCIES.
20. CONTRACTOR SHALL EXERCISE DUE CAUTION AND SHALL CAREFULLY PRESERVE BENCH MARKS, CONTROL POINTS, REFERENCE POINTS AND ALL SURVEY STAKES, AND SHALL BEAR ALL EXPENSES FOR REPLACEMENT AND/OR ERRORS CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE.
21. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING INSPECTION AND TESTING OF ALL FACILITIES CONSTRUCTED UNDER THIS CONTRACT. ALL TESTING SHALL CONFORM TO THE REGULATORY AGENCY'S STANDARD SPECIFICATIONS. ALL TESTING AND INSPECTION SHALL BE PAID FOR BY THE OWNER; ALL RE-TESTING AND/OR RE-INSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.
23. IF EXISTING IMPROVEMENTS NEED TO BE DISTURBED AND/OR REMOVED FOR THE PROPER PLACEMENT OF IMPROVEMENTS TO BE CONSTRUCTED BY THESE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING OR REPAIRING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND/OR REPLACEMENT. THERE WILL BE NO EXTRA COST DUE TO THE CONTRACTOR FOR REPLACING OR REPAIRING EXISTING IMPROVEMENTS.
24. WHENEVER EXISTING FACILITIES ARE REMOVED, DAMAGED, BROKEN, OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS OR SPECIFICATIONS, SAID FACILITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL EXISTING FACILITIES. THE FINISHED PRODUCT SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER, THE ENGINEER, AND THE RESPECTIVE REGULATORY AGENCY.
25. CONTRACTOR SHALL MAINTAIN A NEATLY MARKED SET OF FULL-SIZE AS-BUILT RECORD DRAWINGS SHOWING THE FINAL LOCATION AND LAYOUT OF ALL STRUCTURES AND OTHER FACILITIES. AS-BUILT RECORD DRAWINGS SHALL REFLECT CHANGE ORDERS, ACCOMMODATIONS, AND ADJUSTMENTS TO ALL IMPROVEMENTS CONSTRUCTED. WHERE NECESSARY, SUPPLEMENTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR. PRIOR TO ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL DELIVER TO THE ENGINEER ONE SET OF NEATLY MARKED AS-BUILT RECORD DRAWINGS SHOWING THE INFORMATION REQUIRED ABOVE. AS-BUILT RECORD DRAWINGS SHALL BE REVIEWED AND THE COMPLETE AS-BUILT RECORD DRAWING SET SHALL BE CURRENT WITH ALL CHANGES AND DEVIATIONS REDLINED AS A PRECONDITION TO THE FINAL PROGRESS PAYMENT APPROVAL AND/OR FINAL ACCEPTANCE.
26. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE HIGHEST QUALITY ARE TO BE USED.
27. CONTRACTOR SHALL BE SKILLED AND REGULARLY ENGAGED IN THE GENERAL CLASS AND TYPE OF WORK CALLED FOR IN THE PROJECT PLANS AND SPECIFICATIONS. THEREFORE, THE OWNER IS RELYING UPON THE EXPERIENCE AND EXPERTISE OF THE CONTRACTOR. PRICES PROVIDED WITHIN THE CONTRACT DOCUMENTS SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THE TRUE INTENT AND PURPOSE OF THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE COMPETENT, KNOWLEDGEABLE AND HAVE SPECIAL SKILLS IN THE NATURE, EXTENT AND INHERENT CONDITIONS OF THE WORK TO BE PERFORMED. CONTRACTOR SHALL ALSO ACKNOWLEDGE THAT THERE ARE CERTAIN PECULIAR AND INHERENT CONDITIONS EXISTENT IN THE CONSTRUCTION OF THE PARTICULAR FACILITIES WHICH MAY CREATE, DURING THE CONSTRUCTION PROGRAM, UNUSUAL OR UNSAFE CONDITIONS HAZARDOUS TO PERSONS, PROPERTY AND THE ENVIRONMENT. CONTRACTOR SHALL BE AWARE OF SUCH PECULIAR RISKS AND HAVE THE SKILL AND EXPERIENCE TO FORESEE AND TO ADOPT PROTECTIVE MEASURES TO ADEQUATELY AND SAFELY PERFORM THE CONSTRUCTION WORK WITH RESPECT TO SUCH HAZARDS.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL STRIPING AND/OR PAVEMENT MARKINGS NECESSARY TO TIE EXISTING STRIPING INTO FUTURE STRIPING. METHOD OF REMOVAL SHALL BE BY GRINDING OR SANDBLASTING.
29. CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, SLOPING OR OTHER PROVISIONS NECESSARY TO PROTECT WORKMEN FOR ALL AREAS TO BE EXCAVATED TO A DEPTH OF 4 FEET OR MORE. FOR EXCAVATIONS 4 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL COMPLY WITH LOCAL, STATE AND NATIONAL SAFETY CODES, ORDINANCES. OR REQUIREMENTS FOR EXCAVATION AND TRENCHES.
30. ALL EXISTING GATES AND FENCES TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL GATES AND FENCES FROM DAMAGE.

Utility Notes:

1. CONTRACTOR SHALL COORDINATE LOCATION OF NEW "DRY UTILITIES" WITH THE APPROPRIATE UTILITY COMPANY, INCLUDING BUT NOT LIMITED TO: TELEPHONE SERVICE, GAS SERVICE, CABLE, POWER, INTERNET.
2. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING A COMBINATION OF ON-SITE SURVEYS (BY OTHERS). PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE IN THE FIELD, THEIR MAIN AND SERVICE LINES 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK. THE CONTRACTOR SHALL RECORD THE BLUE STAKES ORDER NUMBER AND FURNISH ORDER NUMBER TO OWNER AND ENGINEER PRIOR TO ANY EXCAVATION. IT WILL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DIRECTLY CONTACT ANY OTHER UTILITY COMPANIES THAT ARE NOT MEMBERS OF BLUE STAKES. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF THIS CONTRACT. ANY REPAIRS NECESSARY TO DAMAGED UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES INSTALLING NEW STRUCTURES, UTILITIES AND SERVICE TO THE PROJECT.
3. CONTRACTOR SHALL POT HOLE ALL UTILITIES TO DETERMINE IF CONFLICTS EXIST PRIOR TO BEGINNING ANY EXCAVATION. NOTIFY ENGINEER OF ANY CONFLICTS. CONTRACTOR SHALL VERIFY LOCATION AND INVERTS OF EXISTING UTILITIES TO WHICH NEW UTILITIES WILL BE CONNECTED. PRIOR TO COMMENCING ANY EXCAVATION WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH THE REQUIRED PROCEDURES.
4. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT HIS EXPENSE.
5. ALL VALVES AND MANHOLE COVERS SHALL BE RAISED OR LOWERED TO MEET FINISHED GRADE.
6. CONTRACTOR SHALL CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX OR MANHOLE.
7. CONTRACTOR SHALL GROUT AT CONNECTION OF PIPE TO BOX WITH NON-SHRINKING GROUT, INCLUDING PIPE VOIDS LEFT BY CUTTING PROCESS, TO A SMOOTH FINISH.
8. CONTRACTOR SHALL GROUT WITH NON-SHRINK GROUT BETWEEN GRADE RINGS AND BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX
9. SILT AND DEBRIS IS TO BE CLEANED OUT OF ALL STORM DRAIN BOXES. CATCH BASINS ARE TO BE MAINTAINED IN A CLEANED CONDITION AS NEEDED UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.
10. CONTRACTOR SHALL CLEAN ASPHALT, TAR OR OTHER ADHESIVES OFF OF ALL MANHOLE LIDS AND INLET GRATES TO ALLOW ACCESS.
11. EACH TRENCH SHALL BE EXCAVATED SO THAT THE PIPE CAN BE LAID TO THE ALIGNMENT AND GRADE AS REQUIRED. THE TRENCH WALL SHALL BE SO BRACED THAT THE WORKMEN MAY WORK SAFELY AND EFFICIENTLY. ALL TRENCHES SHALL BE DRAINED SO THE PIPE LAYING MAY TAKE PLACE IN DE-WATERED CONDITIONS.
12. CONTRACTOR SHALL PROVIDE AND MAINTAIN AT ALL TIMES AMPLE MEANS AND DEVICES WITH WHICH TO REMOVE PROMPTLY AND TO PROPERLY DISPOSE OF ALL WATER ENTERING THE TRENCH EXCAVATION.
13. MAINTAIN A MINIMUM 18" VERTICAL SEPARATION DISTANCE BETWEEN ALL UTILITY CROSSINGS.
14. CONTRACTOR SHALL START INSTALLATION AT LOW POINT OF ALL NEW GRAVITY UTILITY LINES.
15. ALL BOLTED FITTINGS MUST BE GREASED AND WRAPPED.
16. UNLESS SPECIFICALLY NOTED OTHERWISE, MAINTAIN AT LEAST 2 FEET OF COVER OVER ALL STORM DRAIN LINES AT ALL TIMES (INCLUDING DURING CONSTRUCTION).
17. ALL WATER LINES SHALL BE INSTALLED A MINIMUM OF 60" BELOW FINISHED GRADE.
18. ALL SEWER LINES AND SEWER SERVICES SHALL HAVE A MINIMUM SEPARATION OF 10 FEET, PIPE EDGE TO PIPE EDGE, FROM THE WATER LINES. IF A 10 FOOT SEPARATION CAN NOT BE MAINTAINED, THE SEWER LINE AND WATER LINE SHALL BE LAID IN SEPARATE TRENCHES AND THE BOTTOM OF THE WATER LINE SHALL BE AT LEAST 18" ABOVE THE TOP OF THE SEWER LINE.
19. CONTRACTOR SHALL INSTALL THRUST BLOCKING AT ALL WATERLINE ANGLE POINTS AND TEES.
20. ALL UNDERGROUND UTILITIES SHALL BE IN PLACE PRIOR TO INSTALLATION OF CURB, GUTTER, SIDEWALK AND STREET PAVING.
21. CONTRACTOR SHALL INSTALL MAGNETIC LOCATING TAPE CONTINUOUSLY OVER ALL NONMETALLIC PIPE.
22. THRUST BLOCKS & RESTRAINED JOINTS WITH MEGA-LUG ADAPTERS REQUIRED ON ALL BENDS AND FITTINGS USING BLUE BOLTS. PROTECT ALL BOLTS FROM BEING ENCASED IN CONCRETE. INSTALL PER MANUFACTURER RECOMMENDATIONS.

Notice to Contractor:

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON RECORDS OF THE VARIOUS UTILITY COMPANIES AND/OR MUNICIPALITIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.

THE CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEERS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

NOTE:
1. SAWCUT EXISTING ASPHALT INSIDE FROM OUTER EDGE FOR TACK SEAL OF NEW ASPHALT
2. CONTRACTOR TO VERIFY 2% MIN. AND 5% MAX SLOPE FROM EDGE OF ASPHALT TO LIP OF GUTTER

Survey Control Note:

THE CONTRACTOR OR SURVEYOR SHALL BE RESPONSIBLE FOR FOLLOWING THE NATIONAL SOCIETY OF PROFESSIONAL SURVEYORS (NSPS) MODEL STANDARDS FOR ANY SURVEYING OR CONSTRUCTION LAYOUT TO BE COMPLETED USING REEVE & ASSOCIATES, INC. SURVEY DATA OR CONSTRUCTION IMPROVEMENT PLANS. PRIOR TO PROCEEDING WITH CONSTRUCTION STAKING, THE SURVEYOR SHALL BE RESPONSIBLE FOR VERIFYING HORIZONTAL CONTROL FROM THE SURVEY MONUMENTS AND FOR VERIFYING ANY ADDITIONAL CONTROL POINTS SHOWN ON AN ALTA SURVEY, IMPROVEMENT PLAN, OR ANY ELECTRONIC DATA PROVIDED. THE SURVEYOR SHALL ALSO USE THE BENCHMARKS AS SHOWN ON THE PLAN, AND VERIFY THEM AGAINST NO LESS THAN FIVE (5) EXISTING HARD IMPROVEMENT ELEVATIONS INCLUDED ON THESE PLANS OR ON ELECTRONIC DATA PROVIDED. IF ANY DISCREPANCIES ARE ENCOUNTERED, THE SURVEYOR SHALL IMMEDIATELY NOTIFY REEVE & ASSOCIATES, INC. AND RESOLVE THE DISCREPANCIES BEFORE PROCEEDING WITH ANY CONSTRUCTION STAKING.

Erosion Control General Notes:

THE CONTRACTOR TO USE BEST MANAGEMENT PRACTICES FOR PROVIDING EROSION CONTROL FOR CONSTRUCTION OF THIS PROJECT. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO GOVERNING AGENCIES ORDINANCES AND ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE COUNTIES. ALSO, INSPECTORS WILL HAVE THE RIGHT TO CHANGE THE FACILITIES AS NEEDED.

CONTRACTOR SHALL KEEP THE SITE WATERED TO CONTROL DUST. CONTRACTOR TO LOCATE A NEARBY HYDRANT FOR USE AND TO INSTALL TEMPORARY METER. CONSTRUCTION WATER COST TO BE INCLUDED IN BID.

WHEN GRADING OPERATIONS ARE COMPLETED AND THE DISTURBED GROUND IS LEFT OPEN FOR 14 DAYS OR MORE, THE AREA SHALL BE FURROWED PARALLEL TO THE CONTOURS.

THE CONTRACTOR SHALL MODIFY EROSION CONTROL MEASURES TO ACCOMMODATE PROJECT PLANNING.

ALL ACCESS TO PROPERTY WILL BE FROM PUBLIC RIGHT-OF-WAYS. THE CONTRACTOR IS REQUIRED BY STATE AND FEDERAL REGULATIONS TO PREPARE A STORM WATER POLLUTION PREVENTION PLAN AND FILE A "NOTICE OF INTENT" WITH THE GOVERNING AGENCIES.

Maintenance:

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHOWN ON THIS PLAN MUST BE MAINTAINED AT ALL TIMES UNTIL PROJECT CLOSE-OUT.

THE CONTRACTOR'S RESPONSIBILITY SHALL INCLUDE MAKING BI-WEEKLY CHECKS ON ALL EROSION CONTROL MEASURES TO DETERMINE IF REPAIR OR SEDIMENT REMOVAL IS NECESSARY. CHECKS SHALL BE DOCUMENTED AND COPIES OF THE INSPECTIONS KEPT ON SITE.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF BARRIER.

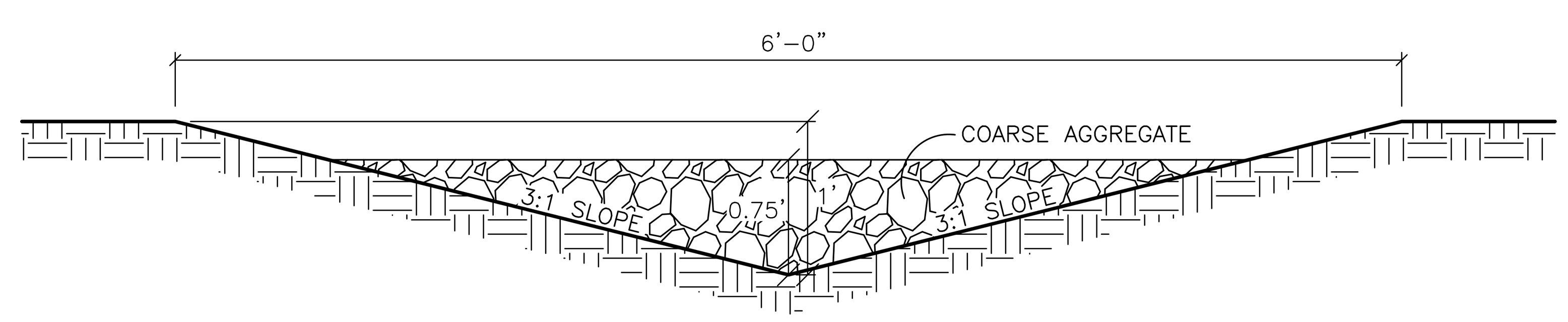
SEDIMENT TRACKED ONTO PAVED ROADS MUST BE CLEANED UP AS SOON AS PRACTICAL, BUT IN NO CASE LATER THAN THE END OF THE NORMAL WORK DAY. THE CLEAN UP WILL INCLUDE SWEEPING OF THE TRACKED MATERIAL, PICKING IT UP, AND DEPOSITING IT TO A CONTAINED AREA.

EXPOSED SLOPES:

ANY EXPOSED SLOPE THAT WILL REMAIN UNTOUCHED FOR LONGER THAN 14 DAYS MUST BE STABILIZED BY ONE OR MORE OF THE FOLLOWING METHODS:
A) SPRAYING DISTURBED AREAS WITH A TACKIFIER VIA HYDROSEED
B) TRACKING STRAW PERPENDICULAR TO SLOPES
C) INSTALLING A LIGHT-WEIGHT, TEMPORARY EROSION CONTROL BLANKET

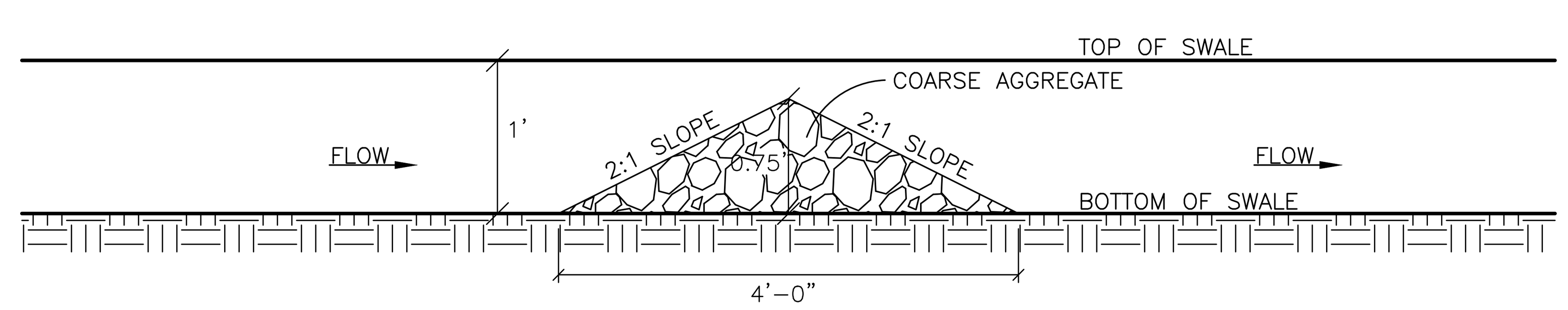
Storm Drainage Note:

THE INCREASE IN SITE IMPERVIOUSNESS INCREASES FLOWS BY APPROXIMATELY 0.07 CFS PER LOT. THE PROPOSED ROADSIDE DITCH WILL UTILIZE ROCK CHECK DAMS SPACED EVERY 100 FT TO REDUCE VELOCITIES OF STORMWATER RUNOFF AS WELL AS GIVING THE WATER RESIDENCE TIME TO INFILTRATE INTO THE GROUND. THE PRODUCED RUNOFF FROM DRIVEWAYS AND HOMES WILL BE CONVEYED INTO PROPOSED DETENTION/RETENTION PONDS FOR EACH LOT. ALL OTHER FLOWS WILL FOLLOW THE HISTORIC PATH AND FLOW DIRECTLY TO EXISTING DRAINAGE WAYS.



Swale Detail W/ Rock Check Dam

SCALE: NONE

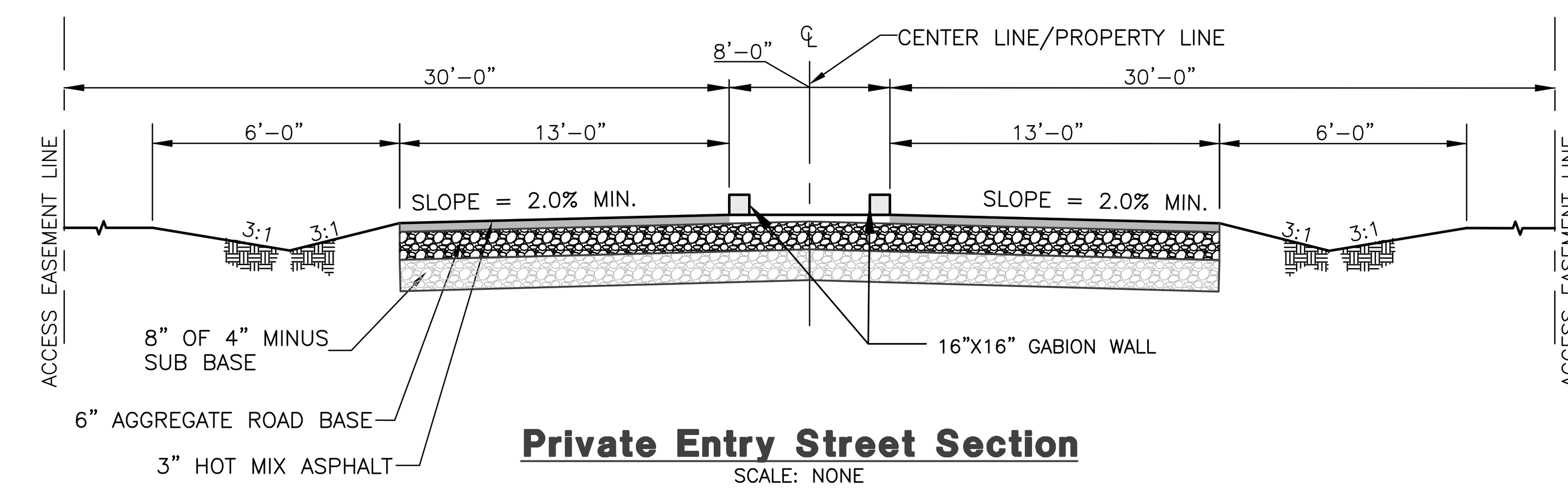


Swale Detail W/ Rock Check Dam

SCALE: NONE

Legend

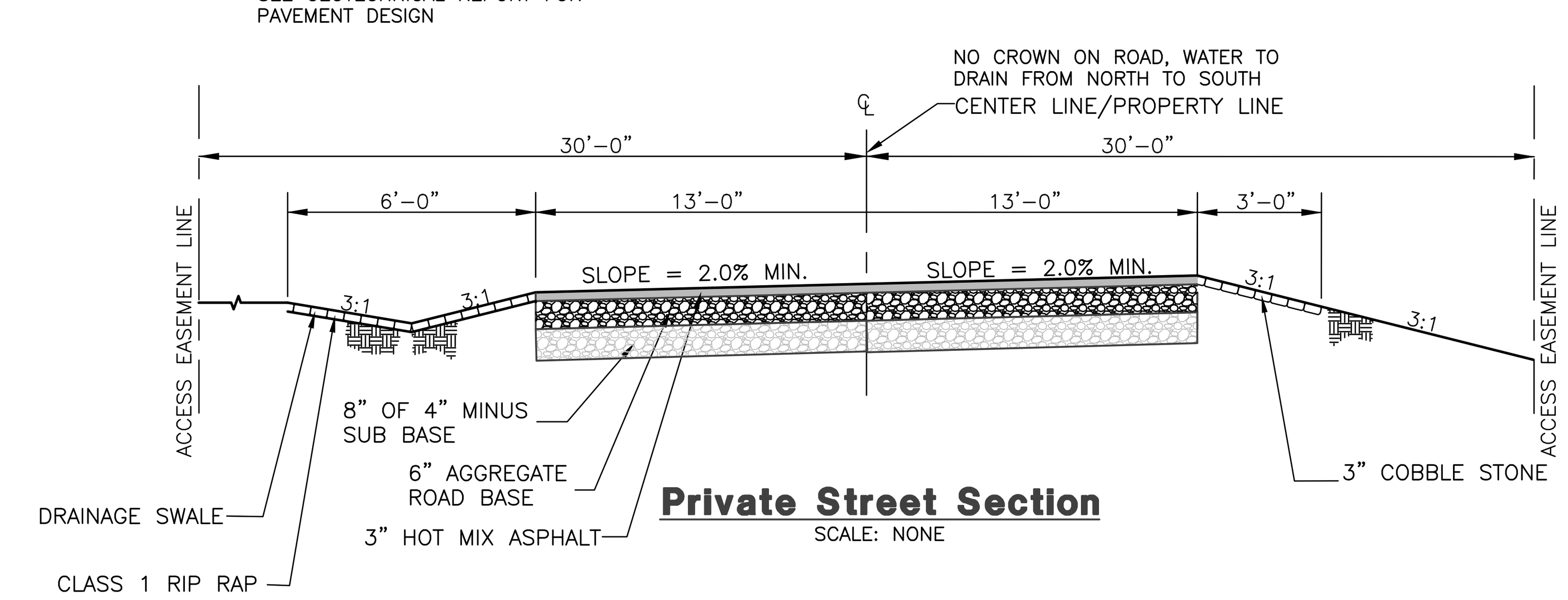
Symbol	Description
SW LAT	= PROPOSED SECONDARY WATER LATERAL
LD LAT	= PROPOSED LAND DRAIN LATERAL
W LAT	= PROPOSED WATER LATERAL
SS LAT	= PROPOSED SEWER LATERAL
W/8	= PROPOSED CULINARY WATER LINE
EX.W	= EXISTING CULINARY WATER LINE
SW/8	= PROPOSED SECONDARY WATER LINE
EX.SW	= EXISTING SECONDARY WATER LINE
SS/8	= PROPOSED SANITARY SEWER LINE
EX.SS	= EXISTING SANITARY SEWER LINE
SD/15	= PROPOSED STORM DRAIN LINE
EX.SD	= EXISTING STORM DRAIN LINE
LD/8	= PROPOSED LAND DRAIN LINE
EX.LD	= EXISTING LAND DRAIN LINE
IRR/18	= PROPOSED IRRIGATION LINE
EX.IRR	= EXISTING IRRIGATION LINE
	= EXISTING FENCE LINE
	= PROPOSED FENCE LINE
	= DRAINAGE SWALE
OHP	= OVERHEAD POWER LINE
	= PROPOSED FIRE HYDRANT
	= EXISTING FIRE HYDRANT
	= PROPOSED MANHOLE
	= EXISTING MANHOLE
	= PROPOSED SEWER CLEAN-OUT
	= PROPOSED GATE VALVE
	= EXISTING GATE VALVE
	= PLUG & BLOCK
	= AIR VAC ASSEMBLY
	= DUAL SECONDARY METER
	= PROPOSED WATER METER
	= EXISTING WATER METER
	= PROPOSED REDUCER
	= EXISTING REDUCER
	= PROPOSED CATCH BASIN
	= EXISTING CATCH BASIN
	= PLUG W/ 2" BLOW-OFF
	= STREET LIGHT
	= SIGN
	= POWER POLE
BFE	= BASEMENT FLOOR ELEVATION
BLDG	= BUILDING
BOS	= BOTTOM OF STAIRS
BOW	= BOTTOM OF WALL
BP	= BEGINNING POINT
C&G	= CURB & GUTTER
CB	= CATCH BASIN
CF	= CUBIC FEET
CFS	= CUBIC FEET PER SECOND
EP	= ENDING POINT
FF	= FINISH FLOOR
FFE	= FINISH FLOOR ELEVATION
FG	= FINISHED GRADE
FH	= FIRE HYDRANT
FL	= FLOW LINE
GB	= GRADE BREAK
INV	= INVERT
LF	= LINEAR FEET
NG	= NATURAL GRADE
OHP	= OVERHEAD POWER
PC	= POINT OF CURVATURE
PP	= POWER/UTILITY POLE
PRC	= POINT OF RETURN CURVATURE
PT	= POINT OF TANGENCY
PUE	= PUBLIC UTILITY EASEMENT
RCP	= REINFORCED CONCRETE PIPE
RIM	= RIM OF MANHOLE
ROW	= RIGHT-OF-WAY
SD	= STORM DRAIN
SS	= SANITARY SEWER
TBC	= TOP BACK OF CURB
TOA	= TOP OF ASPHALT
TOC	= TOP OF CONCRETE
TOFF	= TOP OF FINISHED FLOOR
TOS	= TOP OF STAIRS
TOW	= TOP OF WALL
TSW	= TOP OF SIDEWALK
UGP	= UNDERGROUND POWER
W	= CULINARY WATER
WM	= WATER METER
	= EXISTING ASPHALT PAVEMENT
	= PROPOSED ASPHALT PAVEMENT
	= PROPOSED CONCRETE
	= PROPOSED GRAVEL
4800	= EXISTING CONTOUR GRADE
4800	= PROPOSED CONTOUR GRADE



Private Entry Street Section

SCALE: NONE

NOTE:
THICKNESS ARE COUNTY MINIMUMS
SEE GEOTECHNICAL REPORT FOR
PAVEMENT DESIGN



Private Street Section

SCALE: NONE

NOTE:
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DATE		DESCRIPTION
03-18-24	ZD	County Comments
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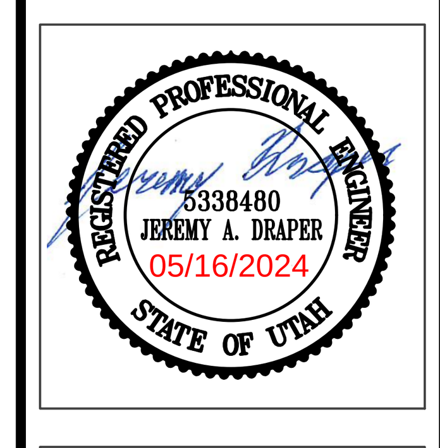
Arrowleaf

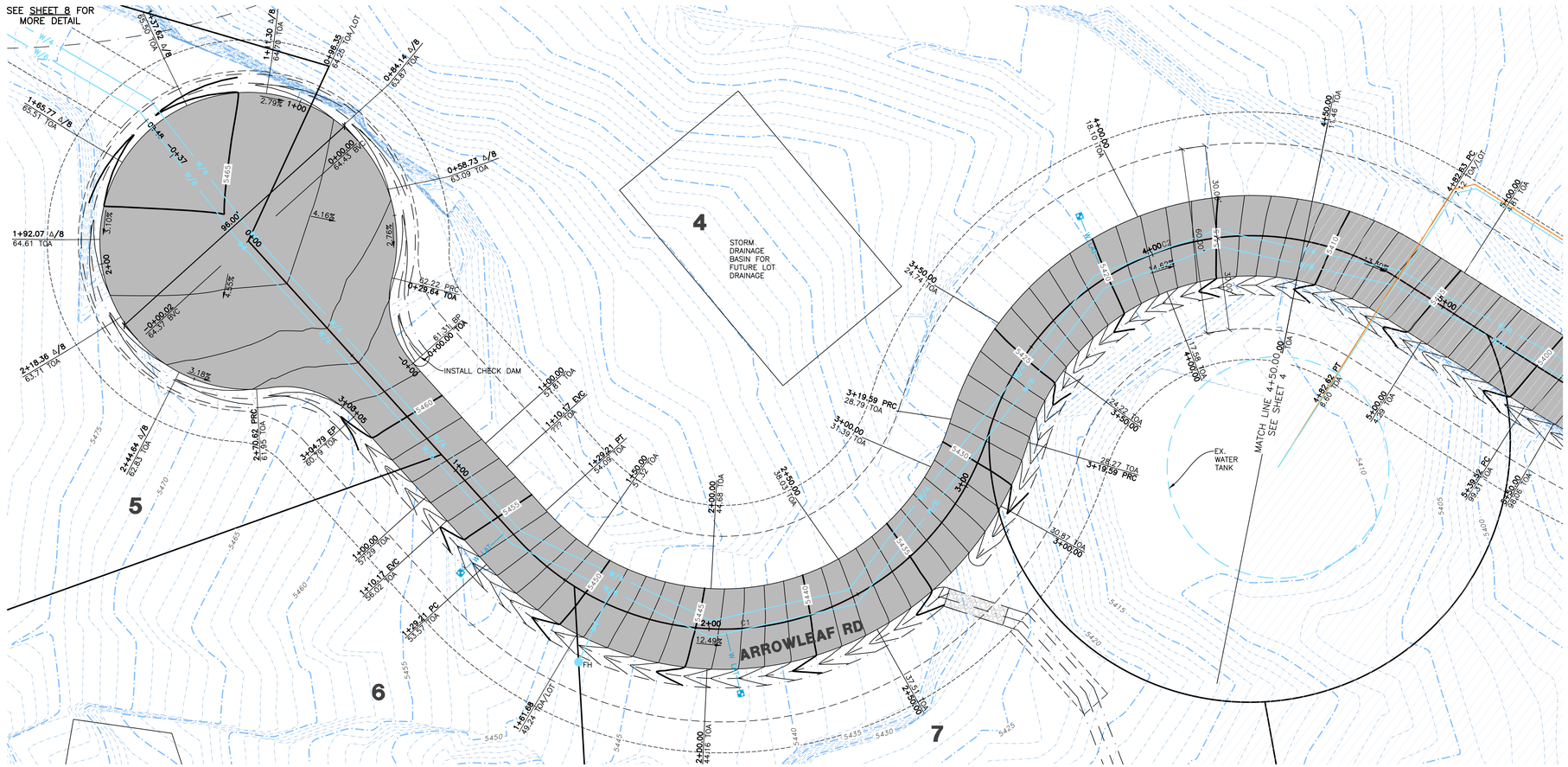
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Notes/Legend/ Street Cross-Section



Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

2
15 Total Sheets



Key Map

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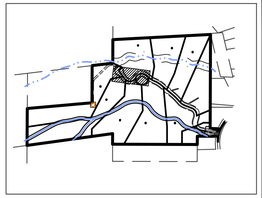

Construction Notes:

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CULINARY WATER

NOTE:5' MIN. COVER REQUIRED OVER CW LINES

W/4 – 4" DIP W/POLY WRAP WATER LINE

W/6 – 6" DIP W/POLY WRAP WATER LINE

W – 1" TYPE K COPPER SERVICE LATERAL

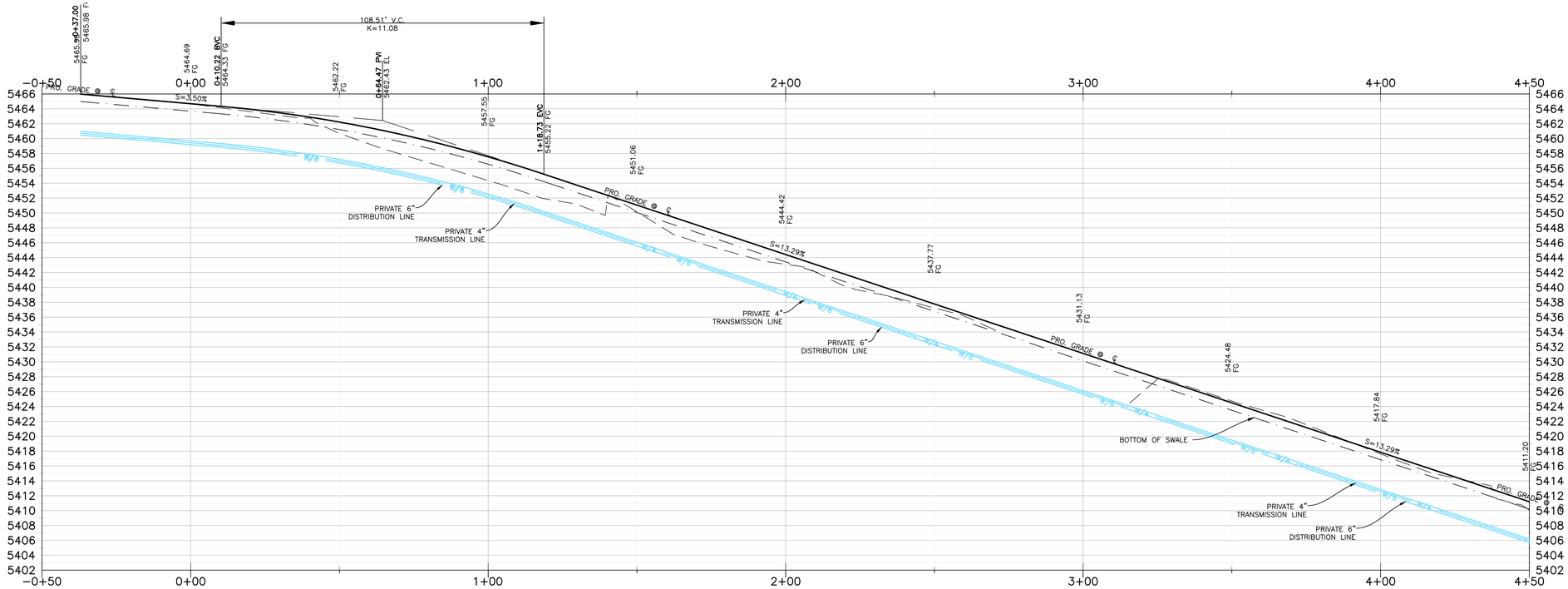
STORM DRAIN

SD/15 – 15" RCP CLASS III STORM DRAIN

15" RCP CULVERTS TO BE INSTALLED AT DRIVEWAY LOCATIONS

Centerline Curve Data

#	Delta	Radius	Length	Tangent	Chord	CH Length
C1	121°12'07"	90.00'	190.38'	159.73'	N84°43'51"E	156.82'
C2	105°36'57"	88.45'	163.04'	116.56'	N76°56'16"E	140.91'



ARROWLEAF RD 0+00.00 - 4+50.00

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 8'

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Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., S.L.B. & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

ARROWLEAF RD 0+00.00 - 4+50.00

REGISTERED PROFESSIONAL ENGINEER
6338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

3
15 Total Sheets

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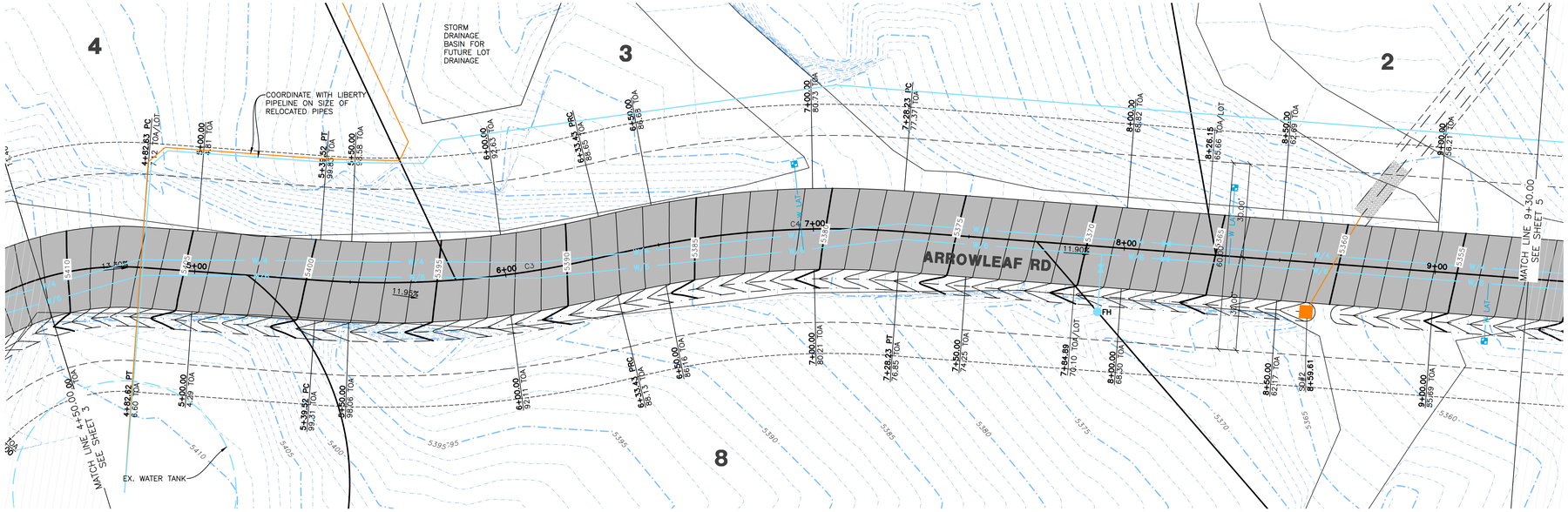

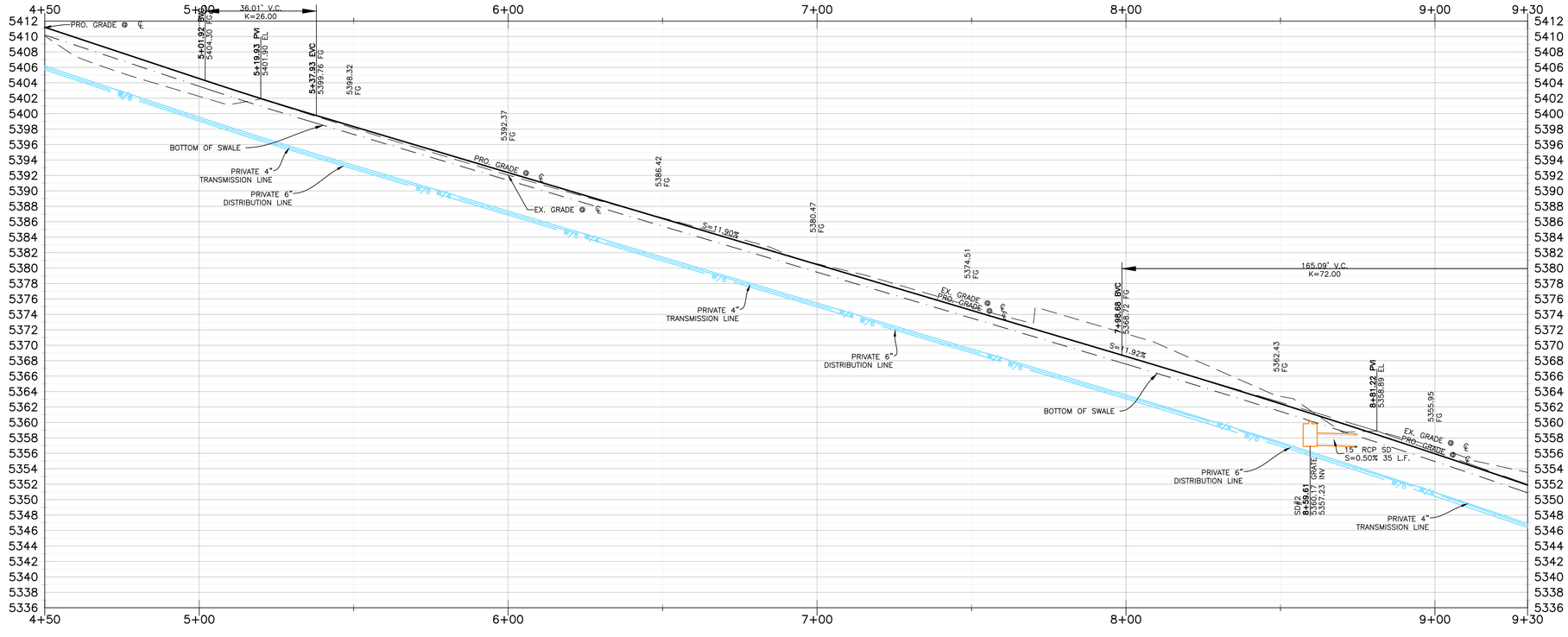

Key Map

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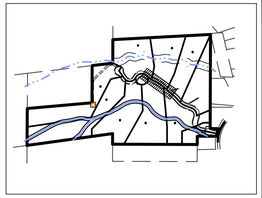

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SD/15 – 15" RCP CLASS III STORM DRAIN
15" RCP CULVERTS TO BE INSTALLED AT DRIVEWAY LOCATIONS

Centerline Curve Data

#	Delta	Radius	Length	Tangent	Chord	CH Length
C3	17°56'07"	300.00'	93.91'	47.34'	S59°13'19"E	93.53'
C4	18°06'20"	300.00'	94.80'	47.80'	S59°08'12"E	94.41'

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Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B. & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

ARROWLEAF RD 4+50.00 - 9+30.00

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

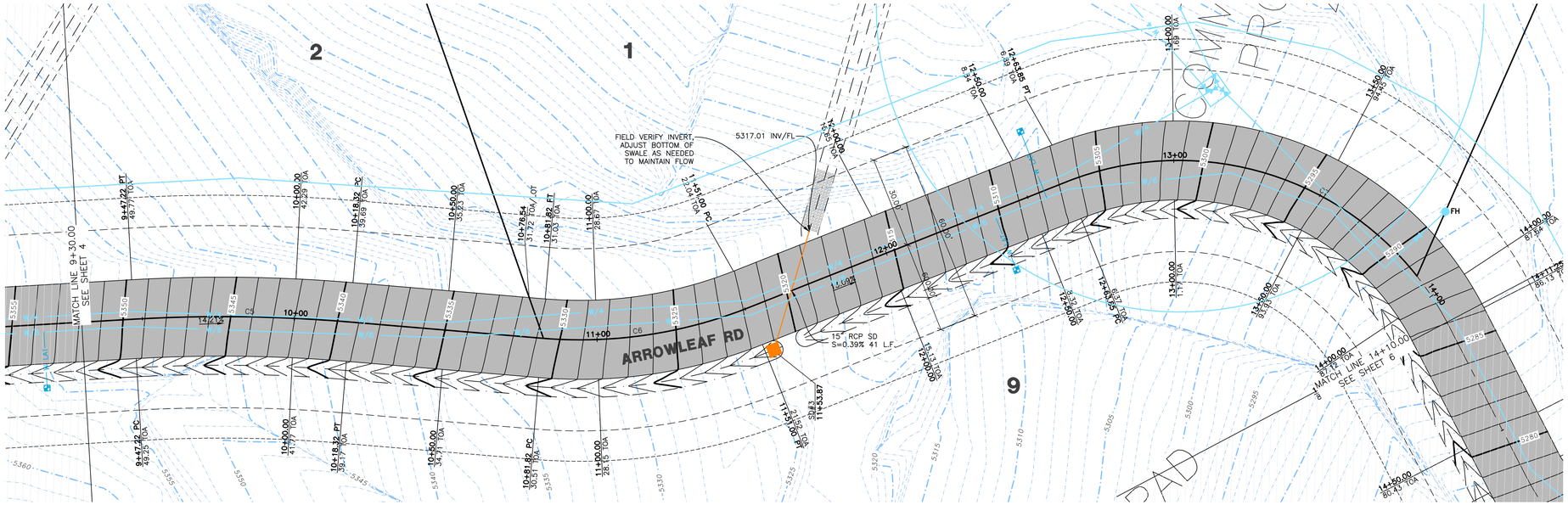
ARROWLEAF RD
4+50.00 - 9+30.00

20 0 20 40 60

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 8'

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

4
15 Total Sheets



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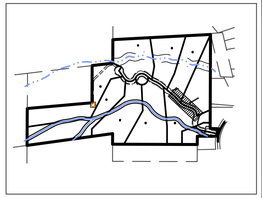

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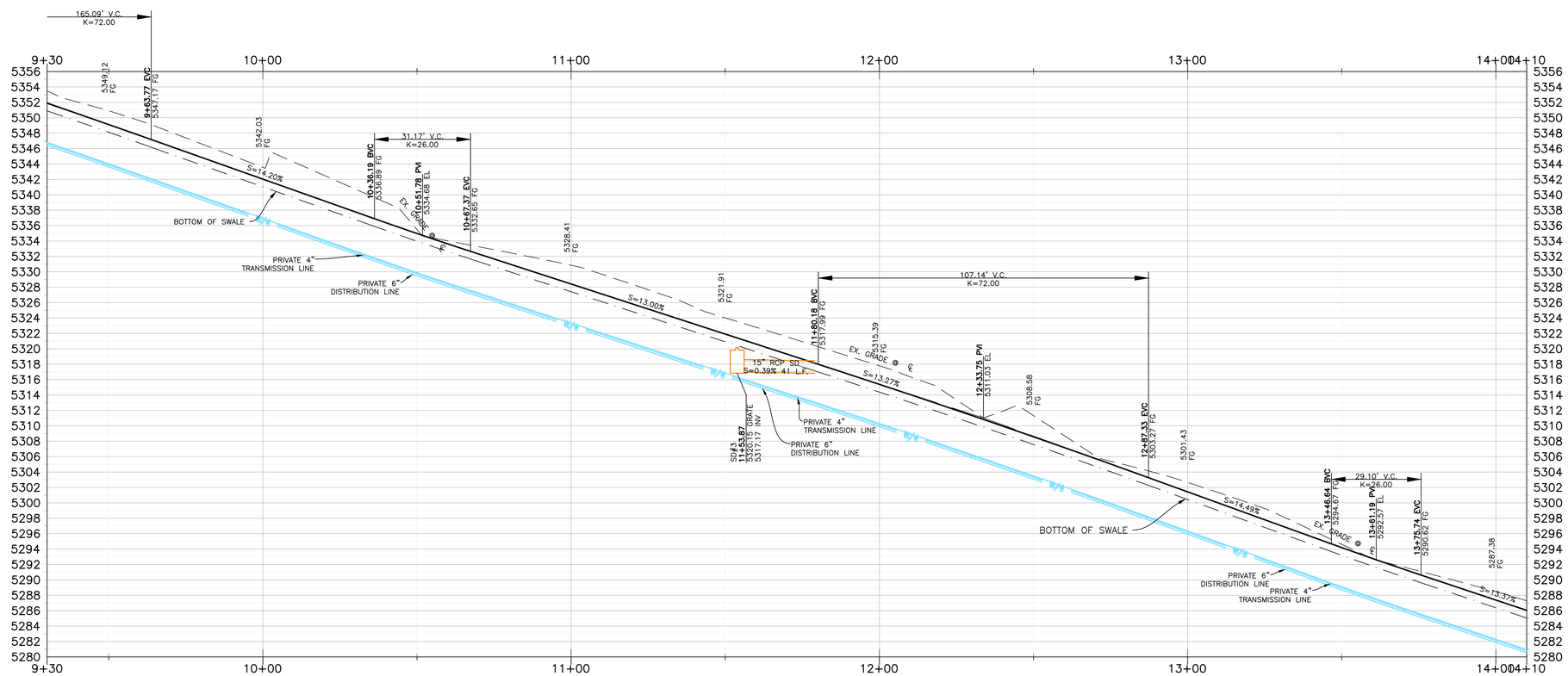
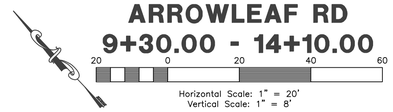
SD/15 – 15" RCP CLASS III STORM DRAIN
15" RCP CULVERTS TO BE INSTALLED AT DRIVEWAY LOCATIONS

Centerline Curve Data

#	Delta	Radius	Length	Tangent	Chord	CH Length
C5	8°08'51"	500.00'	71.10'	35.61'	S46°00'37"E	71.04'
C6	26°25'34"	150.00'	69.18'	35.22'	S55°08'59"E	68.57'
C7	84°27'19"	100.00'	147.40'	90.76'	S26°08'06"E	134.42'



ARROWLEAF RD
9+30.00 - 14+10.00



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EDEN, WEBER COUNTY, UTAH

ARROWLEAF RD 9+30.00 - 14+10.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY A. DRAPER
5338480
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
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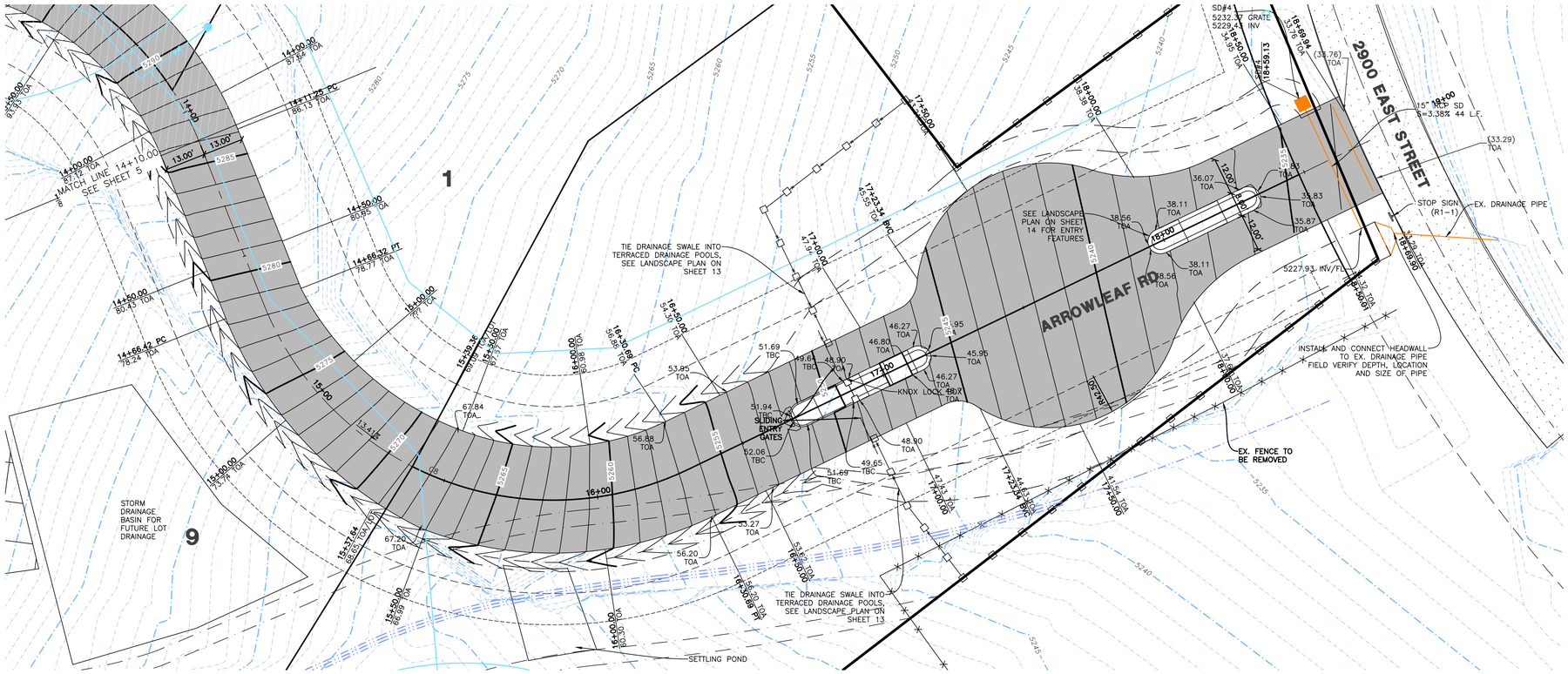
5
15 Total Sheets



ARROWLEAF RD 14+10.00 - 18+73.46

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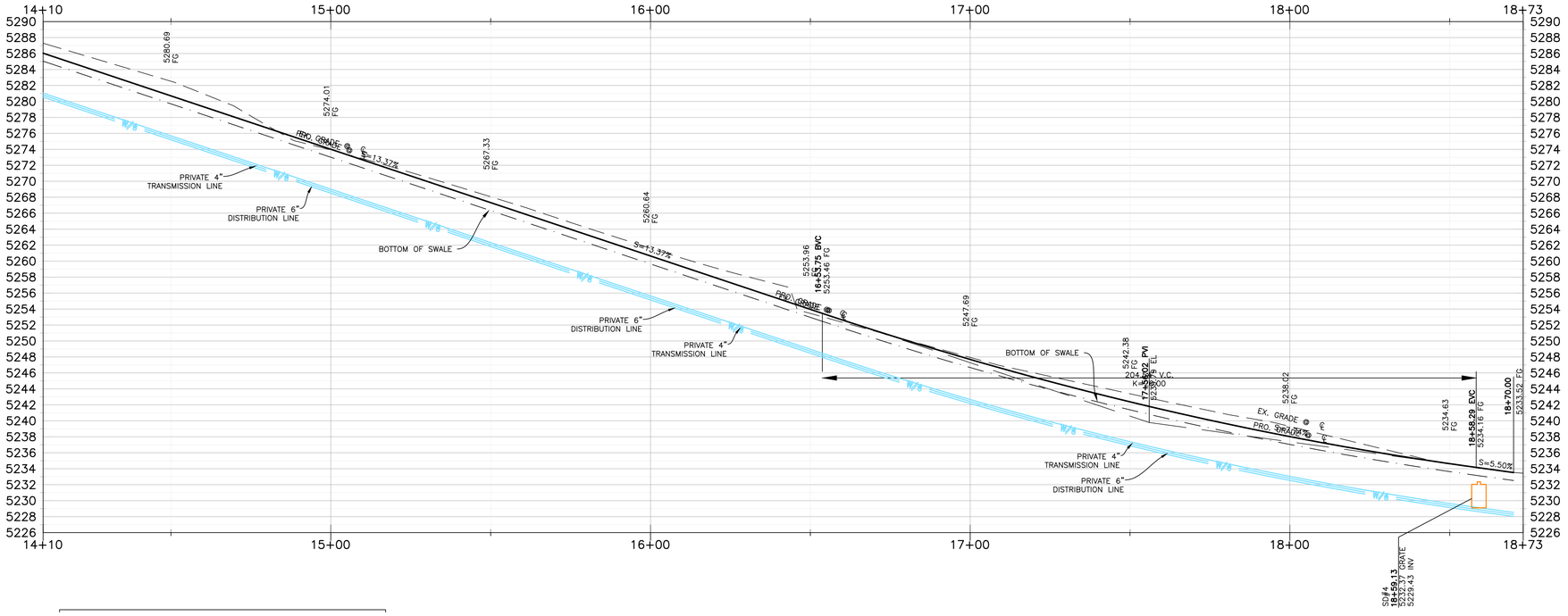
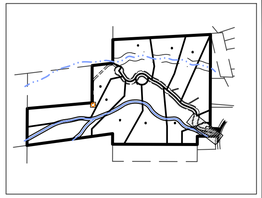
Vertical Scale: 1" = 8'



Key Map

NOT TO SCALE



Construction Notes:

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CULINARY WATER

NOTE:5' MIN. COVER REQUIRED OVER CW LINES
W/4 – 4" DIP W/POLY WRAP WATER LINE
W/6 – 6" DIP W/POLY WRAP WATER LINE
W – 1" TYPE K COPPER SERVICE LATERAL

STORM DRAIN

SD/15 – 15" RCP CLASS III STORM DRAIN
15" RCP CULVERTS TO BE INSTALLED AT DRIVEWAY LOCATIONS

Centerline Curve Data

#	Delta	Radius	Length	Tangent	Chord	CH Length
C8	94°07'16"	100.00'	164.27'	107.46'	S30°58'05"E	146.41'

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Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

ARROWLEAF RD 14+10.00 - 18+73.46

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

Sheet 6 of 15 Total Sheets

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

EX. FENCE

EX. SEASONAL CREEK

100.00' NO BUILDING/ SEPTIC ZONE

PROPOSED DRIVEWAYS

BUILDING PAD 11598 S.F.

BUILDING PAD 21790 S.F.

BUILDING PAD 20000 S.F.

BUILDING PAD 10650 S.F.

BUILDING PAD 10650 S.F.

BUILDING PAD 13185 S.F.

BUILDING PAD 9455 S.F.

ACCESSORY PAD 5021 S.F.

BUILDING PAD 15643 S.F.

BUILDING PAD 20000 S.F.

STORM DRAINAGE BASIN FOR FUTURE LOT DRAINAGE

4 5 3 2 1 6 7 8 9

65.58 TOA
62.22 TOA
61.31 TOA
61.80 TOA
60.76 TOA
54.09 TOA
53.57 TOA
28.79 TOA
7.12 TOA
99.55 TOA
88.65 TOA
77.37 TOA
99.31 TOA
88.13 TOA
6.60 TOA
28.27 TOA
35.33 FG (34.64) NG
36.29 FL

ADD CHECK DAMS EVERY 100' SEE DETAIL ON SHEET 2

CLASS 1 RIPRAP AT OUTLET 2+69.43

SWALE TO PROVIDE DRAINAGE PATH TO EX. DRAINAGE

BRONZE LEAF RD

5357.05 INV/FL

CLASS 1 RIPRAP AT OUTLET 8+74.97

SD#2
5360.17 GRATE
5357.23 INV
59.95 FL
15" RCP SD S=0.50% 35 L.F.

49.77 TOA
49.25 TOA
31.03 TOA
22.04 TOA
30.51 TOA
21.52 TOA

CLASS 1 RIPRAP AT OUTLET 11+79.02

5317.01 INV/FL

SD#3
5320.15 GRATE
5317.17 INV

15" RCP SD S=0.39% 41 L.F.

6.89 TOA
6.37 TOA
85.61 TOA
86.13 TOA
78.24 TOA
78.76 TOA
76.85 TOA

PROPOSED DRIVEWAY

EX. 15" CULVERT

PROPOSED SWALE LOCATION FOR EMERGENCY TANK OVERFLOW. REVISE LOCATION PER SITE CONDITIONS

40.00' BUILDING SETBACK

50.00' SEASONAL CREEK SETBACK/ EASEMENT

SEE SHEET 9 G-1 FOR MORE DETAIL

SETTLING POND

2900 EAST STREET

TIE INTO EXISTING

EX. DRAINAGE PIPE

NOTE:

PROPOSED DRIVEWAY LOCATIONS TO BE FINALIZED WITH INDIVIDUAL LOT SITE PLANS.

PROPOSED DRIVEWAYS TO HAVE A 15" CULVERT PIPE INSTALLED WHERE IT CROSSES THE ROAD SIDE SWALE. AND DRAINAGE SWALES

PROPOSED DRIVE WAYS TO HAVE CULVERTS INSTALLED WHERE THEY CROSS EX. SEASONAL CREEK. FINAL LOCATION AND SIZE TO BE DETERMINED AND FINALIZED WITH INDIVIDUAL LOT SITE PLANS

SWALES WILL BE LINED WITH APPROPRIATELY SIZED RIP-RAP TO ACCOMMODATE THE FLOW VELOCITIES OF THE SWALE IN ADDITION TO CHECK DAMS SPACED EVERY 100'. THE MAXIMUM FLOW VELOCITY WILL BE LESS THAN 8 FT/S.

60 0 60 120 180

Scale: 1" = 60'

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Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Grading Plan

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
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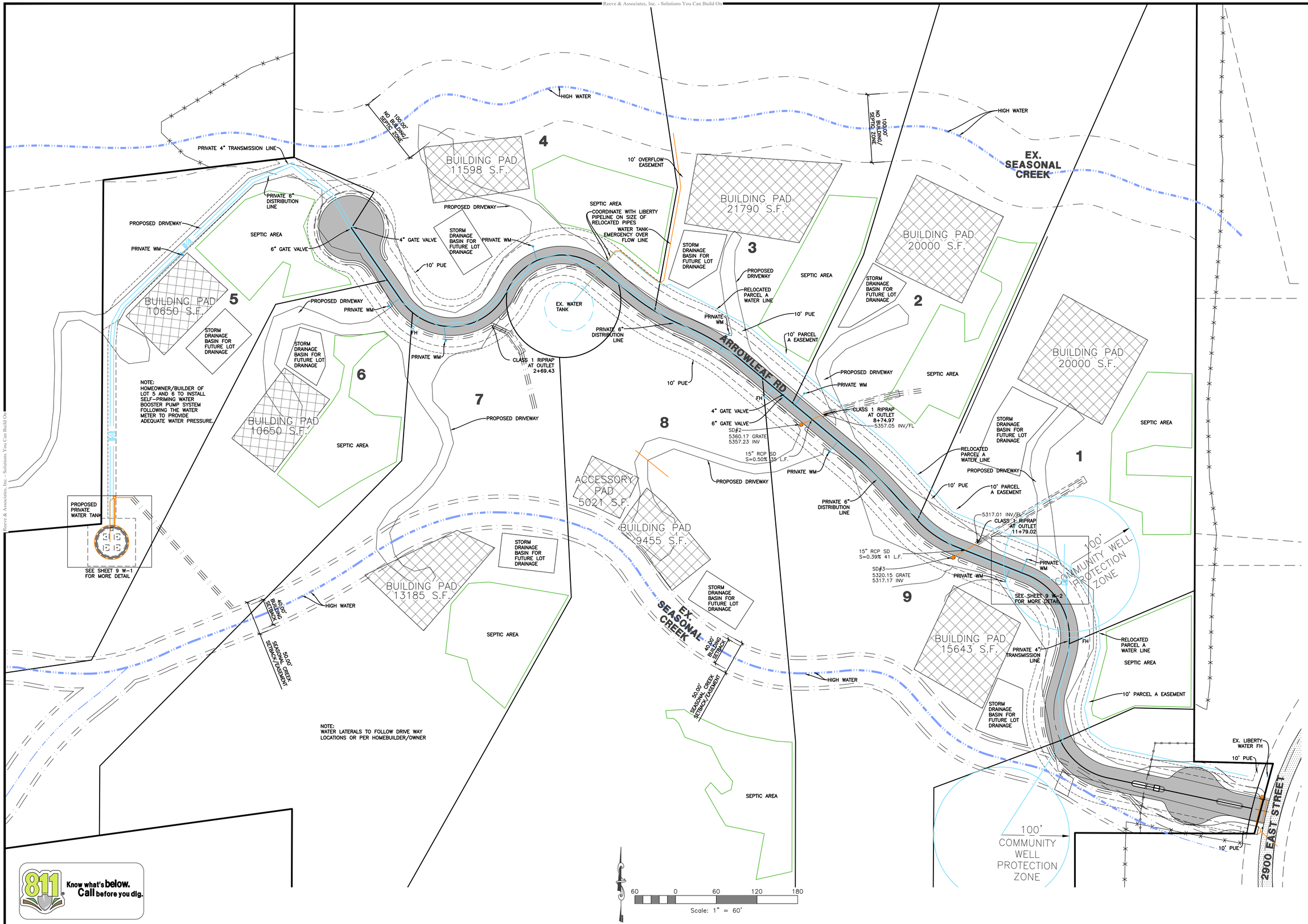
7
15 Total Sheets



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Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Utility Plan

REGISTERED PROFESSIONAL ENGINEER
6338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
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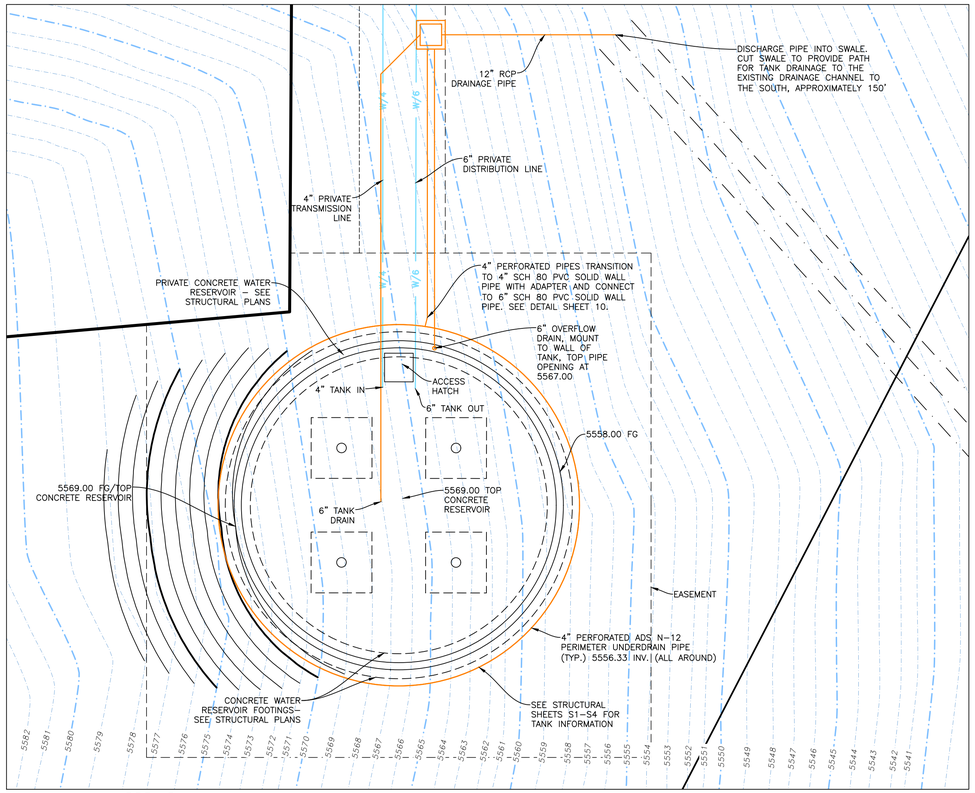
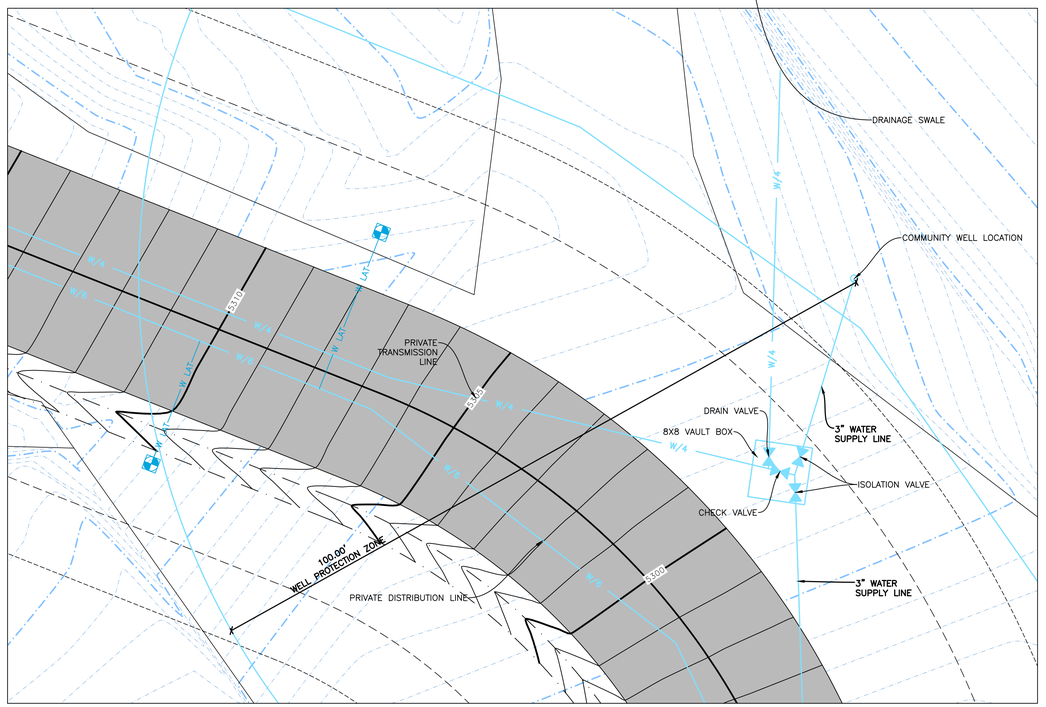


W-1

10 0 10 20 30

Scale: 1" = 10'



W-2

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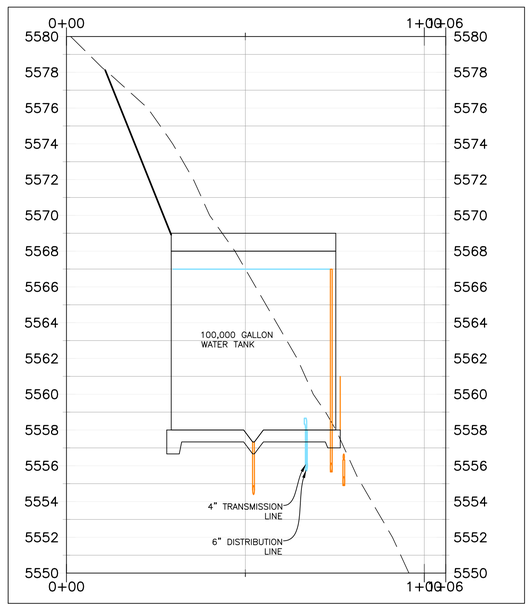
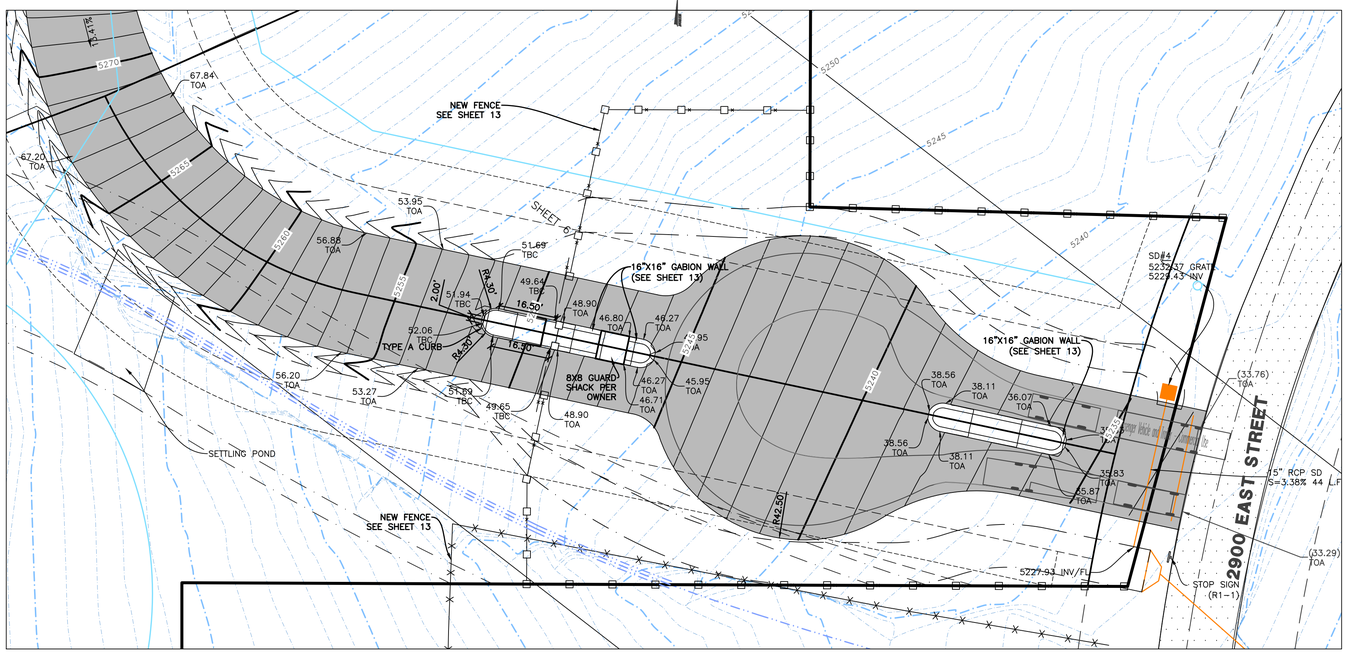
Scale: 1" = 10'



W-1

20 0 20 40 60

Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 2'



G-1

20 0 20 40 60

Scale: 1" = 20'

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LAND PLANNERS • CIVIL ENGINEERS • LAND SURVEYORS
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REVISIONS

DESCRIPTION	DATE
County Comments	03-18-24 ZD
County Comments	04-04-24 ZD
Revised Culdesac	04-16-24 ZD
County Comments	05-16-24 ZD

Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

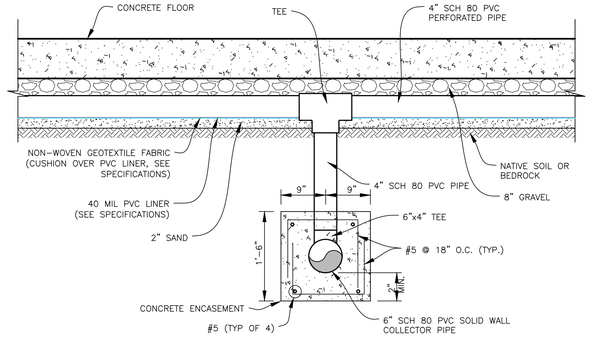
Details

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

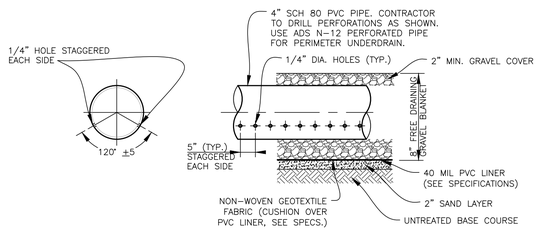
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

9
15 Total Sheets

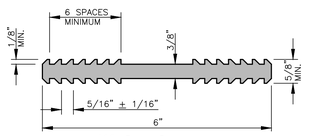


6" Collector Drain Pipe
NOT TO SCALE

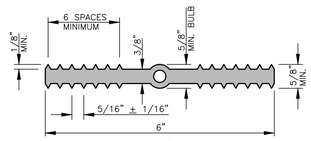
NOTES:
1. ALL 6" SOLID WALL PIPES LOCATED UNDER RESERVOIR SHALL BE ENCASED IN CONCRETE TO A POINT LOCATED 8 FEET BEYOND OUTSIDE OF RESERVOIR FOOTING. (NO CONCRETE ENCASEMENT REQUIRED ON PERIMETER UNDERDRAIN.)
2. ALL UNDERDRAIN PIPE BENEATH THE RESERVOIR SHALL BE SCHEDULE 80 PVC. PERIMETER UNDERDRAIN PIPE SHALL BE ADS N-12 PERFORATED. ALL PERFORTED PIPE SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAIL AND INSTALLED IN GRAVEL BLANKET OVER PVC LINER.
3. GRAVEL BLANKET, GEOTEXTILE, PVC LINER, AND SAND LAYER SHOWN IN CONTINUOUS UNDERNEATH ENTIRE RESERVOIR. GRAVEL, GEOTEXTILE, PVC LINER, AND SAND SHALL EXTEND 3 FEET BEYOND EDGE OF ALL FOOTINGS.
4. ALL PVC LINER, GEOTEXTILE, AND UNDERDRAIN PIPING SHALL BE INSPECTED PRIOR TO BURIAL.



4" Perforated Drain Pipe
NOT TO SCALE

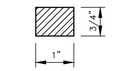


Waterstop
NOT TO SCALE

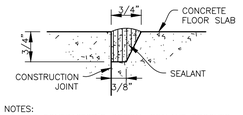


Waterstop
NOT TO SCALE

NOTE:
WATERSTOP IS PREFORMED PLASTIC ADHESIVE TAPE.

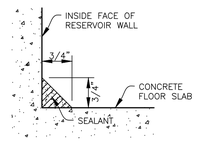


Waterstop
NOT TO SCALE

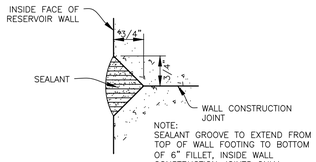


NOTES:
1. AT CONTRACTOR'S OPTION, SEALANT GROOVES MAY CONTINUE STRAIGHT ACROSS CONSTRUCTION JOINT INTERSECTION OR BE STAGGERED UPON APPROVAL OF THE ENGINEER.
2. NO BOND BREAKER WHERE SEALANT GROOVE IS CONSTRUCTED.

Sealant
NOT TO SCALE

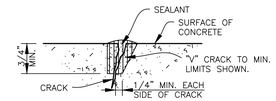


Sealant
NOT TO SCALE



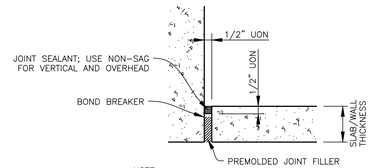
NOTE:
SEALANT GROOVE TO EXTEND FROM TOP OF WALL FOOTING TO BOTTOM OF 6" FILLET, INSIDE WALL CONSTRUCTION JOINTS ONLY.

Sealant
NOT TO SCALE



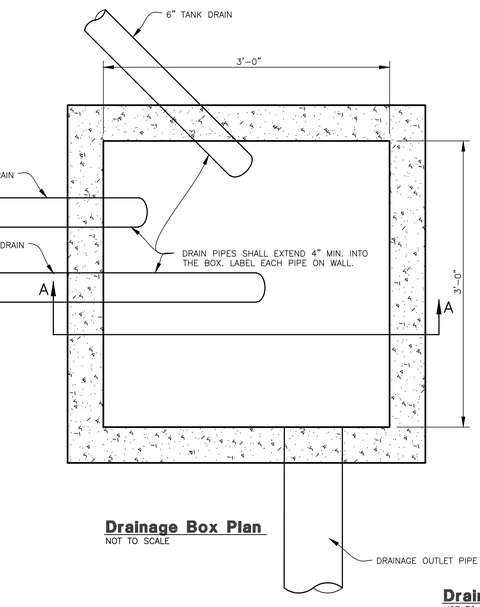
NOTE:
ALL CRACKS IN FLOOR SLABS, WALLS, AND ROOF SLABS ARE TO BE REPAIRED PER THIS DETAIL OR AS INSTRUCTED BY THE ENGINEER PRIOR TO FILLING THE RESERVOIR WITH WATER.

Crack Repair
NOT TO SCALE

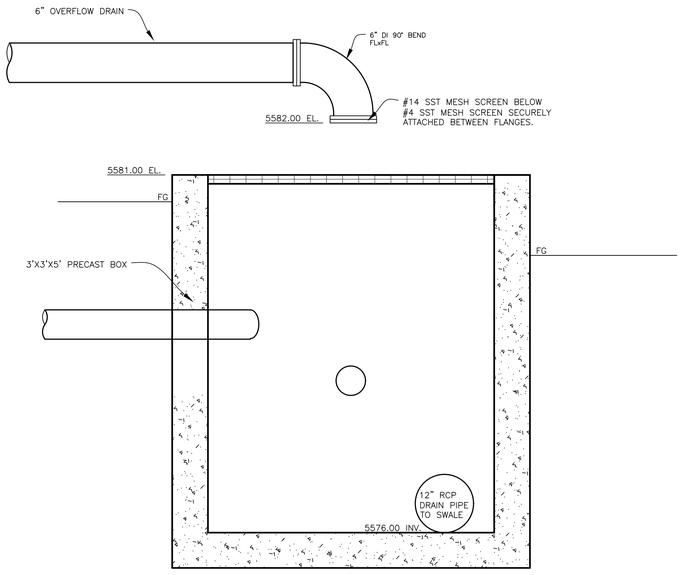


NOTE:
DISCONTINUE ALL REINFORCING AT JOINT. REINFORCING IS NOT SHOWN FOR CLARITY.

Expansion Joint
NOT TO SCALE

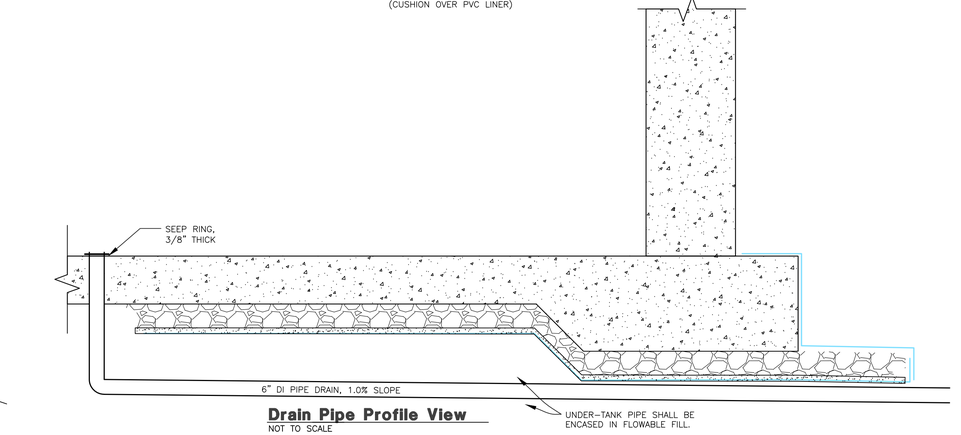


Drainage Box Plan
NOT TO SCALE

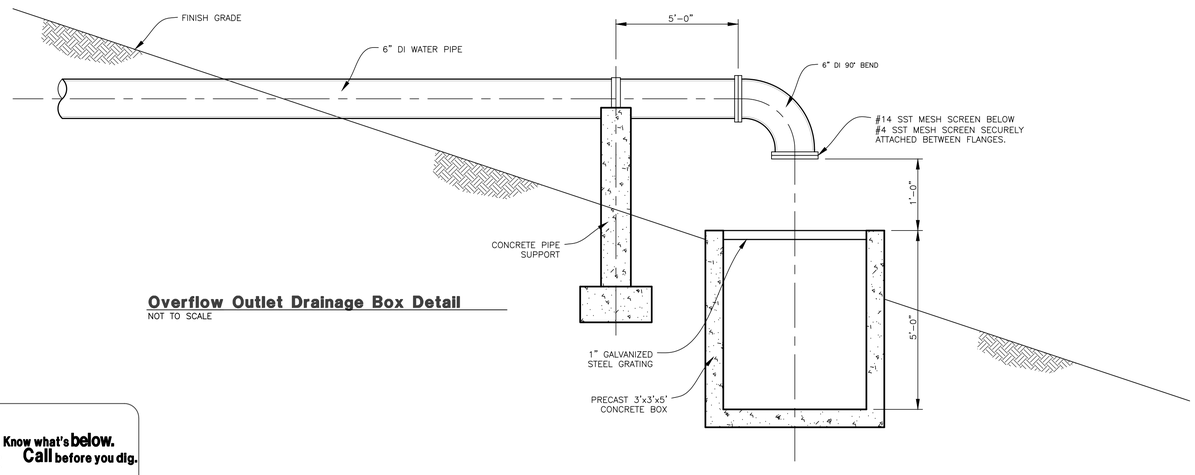


Drain Collection Vault
NOT TO SCALE

Section A-A
NOT TO SCALE



Reservoir Underdrain Piping Profile & PVC Liner Extension at Footings
NOT TO SCALE



Overflow Outlet Drainage Box Detail
NOT TO SCALE

Drain Pipe Profile View
NOT TO SCALE

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

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Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

10
15 Total Sheets

Lot 1 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.32 acre or 13,977 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	10,977	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	494	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 13976.82 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	2.30	691	0	691
10	600	6.02	1.75	1052	0	1052
15	900	4.97	1.45	1302	0	1302
30	1800	3.35	0.98	1756	0	1756
60	3600	2.07	0.60	2170	0	2170
120	7200	1.23	0.36	2579	0	2579
180	10800	0.85	0.25	2673	0	2673
360	21600	0.49	0.14	3076	0	3076
720	43200	0.32	0.09	3975	0	3975
1440	86400	0.21	0.06	5283	0	5283

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**5,283**	**cubic feet**
The required LID Retention volume is	**494**	**cubic feet**
Total storage volume is	**5,283**	**cubic feet**

Lot 2 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.22 acre or 9,667 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	6,667	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	342	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 9666.61 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	1.59	478	0	478
10	600	6.02	1.21	727	0	727
15	900	4.97	1.00	901	0	901
30	1800	3.35	0.67	1214	0	1214
60	3600	2.07	0.42	1501	0	1501
120	7200	1.23	0.25	1783	0	1783
180	10800	0.85	0.18	1849	0	1849
360	21600	0.49	0.10	2127	0	2127
720	43200	0.32	0.06	2749	0	2749
1440	86400	0.21	0.04	3654	0	3654

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**3,654**	**cubic feet**
The required LID Retention volume is	**342**	**cubic feet**
Total storage volume is	**3,654**	**cubic feet**

Lot 3 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.23 acre or 9,899 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	6,899	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	350	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 9899.18 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	1.63	489	0	489
10	600	6.02	1.24	745	0	745
15	900	4.97	1.02	922	0	922
30	1800	3.35	0.69	1244	0	1244
60	3600	2.07	0.43	1537	0	1537
120	7200	1.23	0.25	1826	0	1826
180	10800	0.85	0.18	1893	0	1893
360	21600	0.49	0.10	2178	0	2178
720	43200	0.32	0.07	2815	0	2815
1440	86400	0.21	0.04	3742	0	3742

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**3,742**	**cubic feet**
The required LID Retention volume is	**350**	**cubic feet**
Total storage volume is	**3,742**	**cubic feet**

Lot 4 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.41 acre or 18,023 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	15,023	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	637	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 18023.10 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	2.97	891	0	891
10	600	6.02	2.26	1356	0	1356
15	900	4.97	1.87	1680	0	1680
30	1800	3.35	1.26	2264	0	2264
60	3600	2.07	0.78	2798	0	2798
120	7200	1.23	0.46	3325	0	3325
180	10800	0.85	0.32	3447	0	3447
360	21600	0.49	0.18	3966	0	3966
720	43200	0.32	0.12	5126	0	5126
1440	86400	0.21	0.08	6813	0	6813

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**6,813**	**cubic feet**
The required LID Retention volume is	**637**	**cubic feet**
Total storage volume is	**6,813**	**cubic feet**

Lot 5 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.33 acre or 14,523 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	11,523	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	513	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 14522.70 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	2.39	718	0	718
10	600	6.02	1.82	1093	0	1093
15	900	4.97	1.50	1353	0	1353
30	1800	3.35	1.01	1824	0	1824
60	3600	2.07	0.63	2255	0	2255
120	7200	1.23	0.37	2679	0	2679
180	10800	0.85	0.26	2777	0	2777
360	21600	0.49	0.15	3196	0	3196
720	43200	0.32	0.10	4130	0	4130
1440	86400	0.21	0.06	5490	0	5490

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**5,490**	**cubic feet**
The required LID Retention volume is	**513**	**cubic feet**
Total storage volume is	**5,490**	**cubic feet**

Lot 6 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.37 acre or 15,932 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	12,932	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	563	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 15931.85 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	2.63	788	0	788
10	600	6.02	2.00	1199	0	1199
15	900	4.97	1.65	1485	0	1485
30	1800	3.35	1.11	2001	0	2001
60	3600	2.07	0.69	2473	0	2473
120	7200	1.23	0.41	2939	0	2939
180	10800	0.85	0.28	3047	0	3047
360	21600	0.49	0.16	3506	0	3506
720	43200	0.32	0.10	4531	0	4531
1440	86400	0.21	0.07	6022	0	6022

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**6,022**	**cubic feet**
The required LID Retention volume is	**563**	**cubic feet**
Total storage volume is	**6,022**	**cubic feet**

Lot 7 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.27 acre or 11,673 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	8,673	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	412	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 11673.42 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	1.92	577	0	577
10	600	6.02	1.46	878	0	878
15	900	4.97	1.21	1088	0	1088
30	1800	3.35	0.81	1466	0	1466
60	3600	2.07	0.50	1812	0	1812
120	7200	1.23	0.30	2154	0	2154
180	10800	0.85	0.21	2233	0	2233
360	21600	0.49	0.12	2569	0	2569
720	43200	0.32	0.08	3320	0	3320
1440	86400	0.21	0.05	4413	0	4413

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**4,413**	**cubic feet**
The required LID Retention volume is	**412**	**cubic feet**
Total storage volume is	**4,413**	**cubic feet**

Lot 8 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.44 acre or 19,336 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	16,336	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	683	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 19335.92 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	3.19	956	0	956
10	600	6.02	2.43	1455	0	1455
15	900	4.97	2.00	1802	0	1802
30	1800	3.35	1.35	2429	0	2429
60	3600	2.07	0.83	3002	0	3002
120	7200	1.23	0.50	3567	0	3567
180	10800	0.85	0.34	3698	0	3698
360	21600	0.49	0.20	4255	0	4255
720	43200	0.32	0.13	5499	0	5499
1440	86400	0.21	0.08	7309	0	7309

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**7,309**	**cubic feet**
The required LID Retention volume is	**683**	**cubic feet**
Total storage volume is	**7,309**	**cubic feet**

Lot 9 - Storm Runoff Calculations

Arrowleaf

3/18/2024 BAG

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the Liberty, Utah area taken from the NOAA Atlas 14 database. Calculations have been completed for the 100-yr 24-hr storm event. Storm water runoff has been calculated for a fully developed site with full stormwater retention.

The calculations are as follows:

Drainage Area:

Total Area = 0.39 acre or 16,917 ft²

Runoff Coefficients

Building Area	3,000	C = 0.9
Hardscape Area	13,917	C = 0.9
Landscaped Area		C = 0.2
Weighted Runoff Coefficient		C = 0.90

LID Retention

80th Percentile Rainfall Event (d)	0.5	in
Is the site Feasible for LID?	Yes	
Site Imperviousness (i)	1.00	
NRCS Soil Group	B	
Rv Equation	0.84*I.169	
R_v (Soil Group A: 0.84*I.302; B: 0.84*I.169; C/D: 0.83*I.122)	0.85	
V_{post} = Rv x d x Total Site SF	598	c.f.

Volume of Run-off for 100-year Storm Event:

C = 0.90

I = See Below in/hr

A = 16917.43 ft²

Q(out) = 0.00 ft³/s (0.0 cfs per acre)

time (min)	time (sec)	i (in./hr.)	Q (cfs)	Vol. in (cf)	Vol. out (cf)	Difference (cf)
0	0	0.00	0.00	0	0	0
5	300	7.91	2.79	836	0	836
10	600	6.02	2.12	1273	0	1273
15	900	4.97	1.75	1576	0	1576
30	1800	3.35	1.18	2125	0	2125
60	3600	2.07	0.73	2626	0	2626
120	7200	1.23	0.43	3121	0	3121
180	10800	0.85	0.30	3235	0	3235
360	21600	0.49	0.17	3723	0	3723
720	43200	0.32	0.11	4811	0	4811
1440	86400	0.21	0.07	6395	0	6395

Orifice Sizing

Given: Q = 0.00 cfs

2g = 64.4 ft/s²

H = 4.00 ft

Cd = 0.62 for circular openings

R = SQRT(Q/pi/(0.7*(64.4*H)^0.5))

R = 0.00 feet

0.00 inches

D = 0.00 inches

A = 0.00 inches ^2 0.0000 ft ^2

SUMMARY:

The required 100-yr storage volume is	**6,395**	**cubic feet**
The required LID Retention volume is	**598**	**cubic feet**
Total storage volume is	**6,395**	**cubic feet**

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REVISIONS

DATE	DESCRIPTION
03—18—24 ZD	County Comments
04—04—24 ZD	County Comments
04—16—24 ZD	Revised Culdesac
05—16—24 ZD	County Comments

Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Storm Water Calculations

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.

Drafter: Z. DECARIA

Begin Date: FEBUARY 2023

Name: ARROWLEAF

Number: 7895—01

11

15 Total Sheets

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BUILDING PAD
11598 S.F.

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BUILDING PAD
10650 S.F.

BUILDING PAD
13185 S.F.

ACCESSORY PAD
5021 S.F.

BUILDING PAD
9455 S.F.

BUILDING PAD
15643 S.F.

EX. SEASONAL CREEK

EX. LIBERTY WATER TANK

EX. LIBERTY WATER FH

ARROWLEAF RD

2900 EAST STREET

502 FEET
514 FEET
386 FEET
484 FEET
450 FEET
536 FEET
497.50 FEET
460 FEET
481 FEET

625.89 LINEAR FEET ALONG ROAD

579.47 LINEAR FEET ALONG ROAD

100' COMMUNITY WELL PROTECTION ZONE

100' COMMUNITY WELL PROTECTION ZONE

PROPOSED 100,000 GALLON TANK

1 2 3 4 5 6 7 8 9

60 0 60 120 180
Scale: 1" = 60'

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

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REVISIONS

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04-16-24	ZD Revised Culdesac
05-16-24	ZD County Comments

SURVEY

Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Fire Exhibit

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

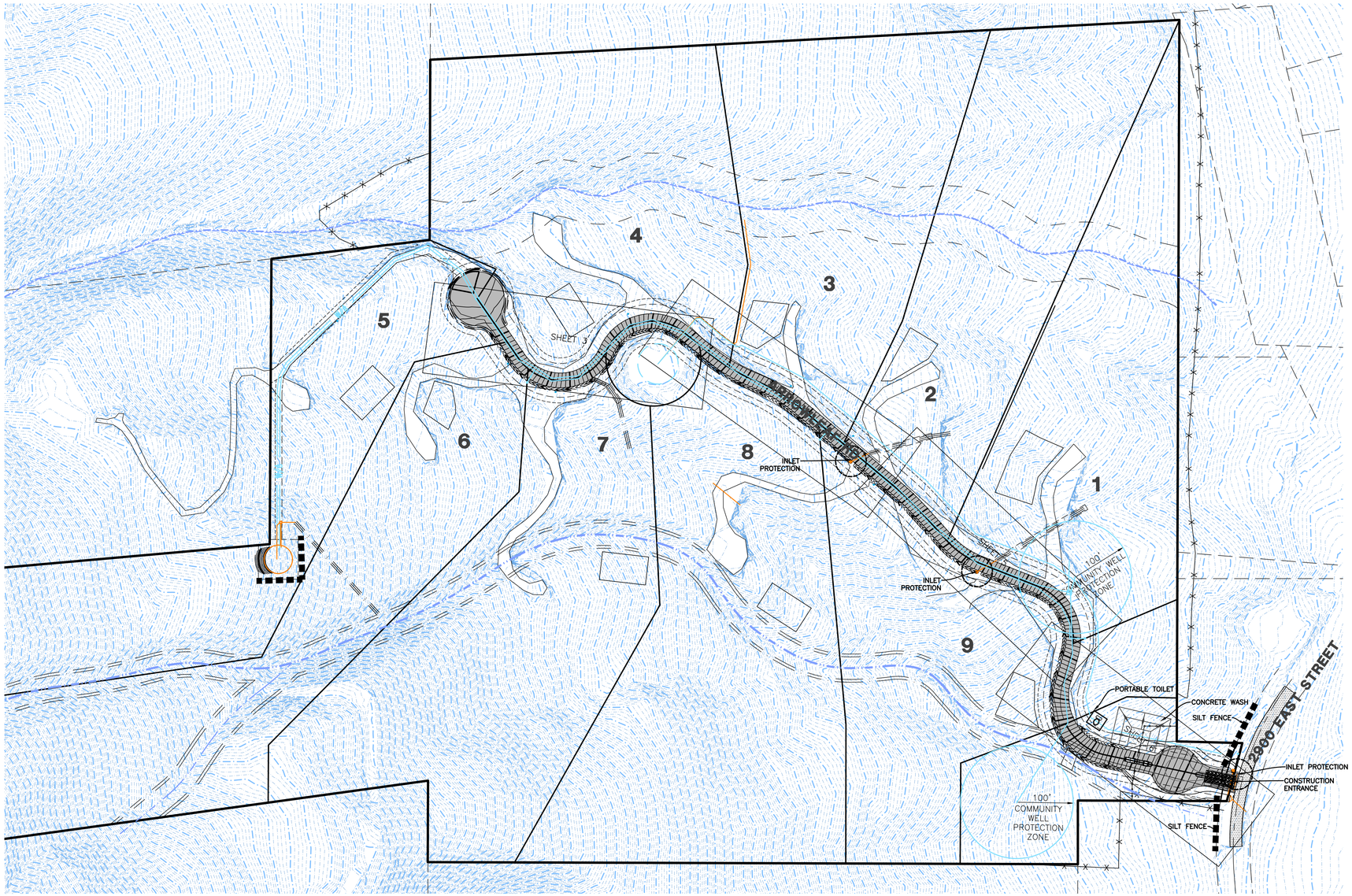
Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

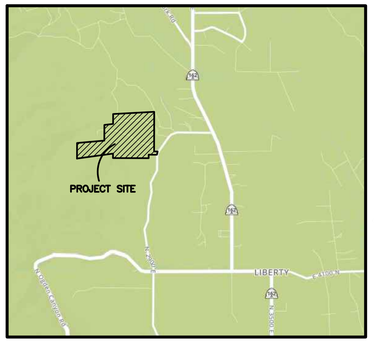
12
15 Total Sheets

ARROWLEAF

Storm Water Pollution Prevention Plan Exhibit

EDEN, WEBER COUNTY, UTAH
FEBUARY, 2023





Vicinity Map
NOT TO SCALE

SWPPP Legend

- = PORTABLE TOILET
- = INLET PROTECTION TYP. (SEE DETAIL)
- = SILT FENCE (SEE DETAIL)
- = 50'x20' CONSTRUCTION ENTRANCE W/8" CLEAN GRAVEL
- = CONCRETE WASH AREA (SEE DETAIL) OR AS SELECTED BY CONTRACTOR

SWPPP NOTES:
1. ALL VEHICLES EXITING SITE TO PROCEED THROUGH CONSTRUCTION ENTRANCE TO REDUCE AMOUNTS OF SEDIMENT TRACKED ONTO ROADWAYS.
2. STREETS TO BE SWEPT WITHIN 1000 FEET OF CONSTRUCTION ENTRANCE DAILY IF NECESSARY

100 0 100 200 300
Scale: 1" = 100'

Construction Activity Schedule

- PROJECT LOCATION.....EDEN, WEBER COUNTY, UTAH
- PROJECT BEGINNING DATE.....JANUARY 2023
- BMP'S DEPLOYMENT DATE.....JANUARY 2023
- STORM WATER MANAGEMENT CONTACT / INSPECTOR.....DAVE & SARA CHUGG (801)420-8814
- SPECIFIC CONSTRUCTION SCHEDULE INCLUDING BMP CONSTRUCTION SCHEDULE TO BE INCLUDED WITH SWPPP BY OWNER/DEVELOPER

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Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Storm Water Pollution Prevention Plan Exhibit

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895-01

13
15 Total Sheets

Notes:

1. Describe all BMP's to protect storm water inlets:
All storm water inlets to be protected by straw wattle barriers, or gravel bags (see detail).

2. Describe BMP's to eliminate/reduce contamination of storm water from:
   a. Equipment / building / concrete wash areas:
      To be performed in designated areas only and surrounded with silt fence barriers.
   b. Soil contaminated by soil amendments:
      If any contaminates are found or generated, contact environmental engineer and contacts listed.
   c. Areas of contaminated soil:
      If any contaminates are found or generated, contact environmental engineer and contacts listed.
   d. Fueling area:
      To be performed in designated areas only and surrounded with silt fence.
   e. Vehicle maintenance areas:
      To be performed in designated areas only and surrounded with silt fence.
   f. Vehicle parking areas:
      To be performed in designated areas only and surrounded with silt fence.
   g. Equipment storage areas:
      To be performed in designated areas only and surrounded with silt fence.
   h. Materials storage areas:
      To be performed in designated areas only and surrounded with silt fence.
   i. Waste containment areas:
      To be performed in designated areas only and surrounded with silt fence.
   j. Service areas:
      To be performed in designated areas only and surrounded with silt fence.

3. BMP's for wind erosion:
Stockpiles and site as needed to be watered regularly to eliminate / control wind erosion

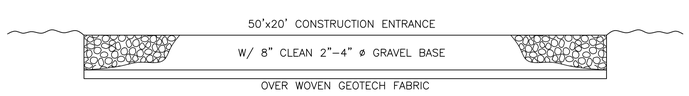
4. Construction Vehicles and Equipment:
   a. Maintenance
      – Maintain all construction equipment to prevent oil or other fluid leaks.
      – Keep vehicles and equipment clean, prevent excessive build–up of oil and grease.
      – Regularly inspect on–site vehicles and equipment for leaks, and repair immediately.
      – Check incoming vehicles and equipment (including delivery trucks, and employee and subcontractor vehicles) for leaking oil and fluids. Do not allow leaking vehicles or equipment on–site.
      – Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic, and transmission fluids.
   b. Fueling
      – If fueling must occur on–site, use designated areas away from drainage.
      – Locate on–site fuel storage tanks within a bermed area designed to hold the tank volume.
      – Cover retention area with an impervious material and install in in a manner to ensure that any spills will be contained in the retention area. To catch spills or leaks when removing or changing fluids.
      – Use drip pans for any oil or fluid changes.
   c. Washing
      – Use as little water as possible to avoid installing erosion and sediment controls for the wash area.
      – If washing must occur on–site, use designated, bermed wash areas to prevent waste water discharge into storm water, creeks, rivers, and other water bodies.
      – Use phosphate–free, biodegradable soaps.
      – Do not permit steam cleaning on–site.

5. Spill Prevention and Control
   a. Minor Spills:
      Minor spills are those which are likely to be controlled by on–site personnel. After contacting local emergency response agencies, the following actions should occur upon discovery of a minor spill:
      – Contain the spread of the spill.
      – If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (i.e. absorbent materials, cat litter, and / or rags).
      – If the spill occurs in dirt areas, immediately contain the spill by constructing an earth dike. Dig up and properly dispose of contaminated soil.
      – If the spill occurs during rain, cover the impacted area to avoid runoff.
      – Record all steps taken to report and contain spill.
   b. Major Spills:
      On–site personnel should not attempt to control major spills until the appropriate and qualified emergency response staff have arrived at the site. For spills of federal reportable quantities, also notify the National Response Center at (800) 424–8802. A written report should be sent to all notified authorities. Failure to report major spills can result in significant fines and penalties.

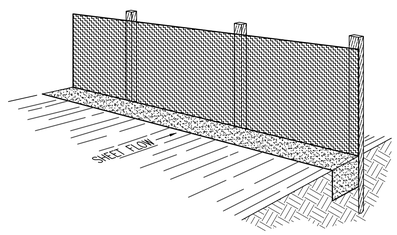
6. Post Roadway / Utility Construction
   a. Maintain good housekeeping practices.
   b. Enclose or cover building material storage areas.
   c. Properly store materials such as paints and solvents.
   d. Store dry and wet materials under cover, away from drainage areas.
   e. Avoid mixing excess amounts of fresh concrete or cement on–site.
   f. Perform washout of concrete trucks offsite or in designated areas only.
   g. Do not wash out concrete trucks into storm drains, open ditches, streets or streams.
   h. Do not place material or debris into streams, gutters or catch basins that stop or reduce the flow of runoff water.
   i. All public streets and storm drain facilities shall be maintained free of building materials, mud and debris caused by grading or construction operations. Roads will be swept within 1000' of construction entrance daily, if necessary.
   j. Install straw wattle around all inlets contained within the development and all others that receive runoff from the development.

7. Erosion Control Plan Notes
   a. The contractor will designate an emergency contact that can be reached 24 hours a day 7 days a week.
   b. A stand–by crew for emergency work shall be available at all times during potential rain or snow runoff events. Necessary materials shall be available on site and stockpiled at convenient locations to facilitate rapid construction of emergency devices when rain or runoff is eminent.
   c. Erosion control devices shown on the plans and approved for the project may not be removed without approval of the engineer of record. If devices are removed, no work may continue that have the potential of erosion without consulting the engineer of record. If deemed necessary erosion control should be reestablished before this work begins.
   d. Graded areas adjacent to fill slopes located at the site perimeter must drain away from the top of the slope at the conclusion of each working day. this should be confirmed by survey or other means acceptable to the engineer of record.
   e. All silt and debris shall be removed from all devices within 24 hours after each rain or runoff event.
   f. Except as otherwise approved by the inspector, all removable protective devices shown shall be in place at the end of each working day and through weekends until removal of the system is approved.
   g. All loose soil and debris, which may create a potential hazard to offsite property, shall be removed from the site as directed by the engineer of record of the governing agency.
   h. The placement of additional devices to reduce erosion damage within the site is left to the discretion of the engineer of record.
   i. Desilting basins may not be removed or made inoperable without the approval of the engineer of record and the governing agency.
   j. Erosion control devices will be modified as need as the project progresses and plans of these changes submitted for approval by the engineer of record and the governing agency.

8. Conduct a minimum of one inspection of the erosion and sediment controls every two weeks. Maintain documentation on site.
   a. Part III.D.4 of general permit UTRC00000 identifies the minimum inspection requirements.
   b. Part II.D.4.C identifies the minimum inspection report requirements.
   c. Failure to complete and/or document storm water inspections is a violation of part III.D.4 of Utah General Permit UTR 300000.

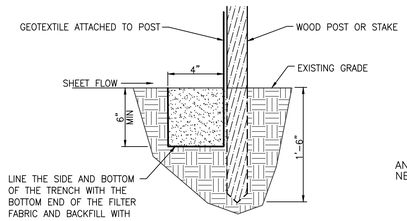


Cross Section 50' x 20' Construction Entrance



Perspective View

Figure 2



Section

INSTALLATION
The silt fence should be installed prior to major soil disturbances in the drainage area. The fence should be placed across the slope along a line of uniform elevation wherever flow of sediment is anticipated. Table 1 shows generally–recommended maximum slope lengths (slope spacing between fences) at various site grades for most silt fence applications.

TABLE 1:
Recommended Maximum Slope Lengths for Silt Fence
(Richardson & Middlebrooks, 1991)

Slope Steepness (%)	Max. Slope Length m (ft)
<2%	30.5m (100ft)
2–5%	22.9m (75ft)
5–10%	15.2m (50ft)
10–20%	7.6m (25ft)
>20%	4.5m (15ft)

PREFABRICATED SILT FENCE ROLLS
*Excavate a minimum 15.2cm x 15.2cm (6"x6") trench at the desired location.
*Unroll the silt fence, positioning the post against the downstream wall of the trench.
*Adjacent rolls of silt fence should be joined be nesting the end post of one fence into the other. Before nesting the end posts, rotate each post until the geotextile is wrapped completely around the post, then abut the end posts to create a tight seal as shown in Figure 1.
*Drive posts into the ground until the required fence height and/or anchorage depth is obtained.
*Bury the loose geotextile at the bottom of the fence in the upstream trench and backfill with natural soil, tamping the backfill to provide good compaction and anchorage. Figure 2 illustrates a typical silt fence installation and anchor trench placement.

FIELD ASSEMBLY:
*Excavate a minimum 15.2cm x 15.2cm (6"x6") trench at the desired location.
*Drive wooden posts, or steel posts with fastening projections, against the downstream wall of the trench. Maximum post spacing should be 2.4–3.0m (8–10ft). Post spacing should generally be less than three (3) times the height of the fence.
*If a steel or plastic mesh is required to reinforce the geotextile, it shall have a minimum mesh opening of 15.2cm (6").
*Fasten the mesh to the upslope side of the posts using heavy duty wire staples, tie wires or hog strings. Extend the mesh into the bottom of the trench.
*The geotextile shall then be stapled or wired to the posts. An extra 20–50cm (8–20") of geotextile shall extend into the trench.

INSPECTION
*Inspect the silt fence daily during periods of rainfall, immediately after significant rainfall event and weekly during periods of no rainfall. Make any repairs immediately.
*When sediment deposits behind the silt fence are one–third of the fence height, remove and properly dispose of the silt accumulations. Avoid damage to the fabric during cleanout.

REMOVAL
*Silt fence should not be removed until construction ceases and the upslope area has been properly stabilized and/or revegetated.

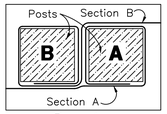
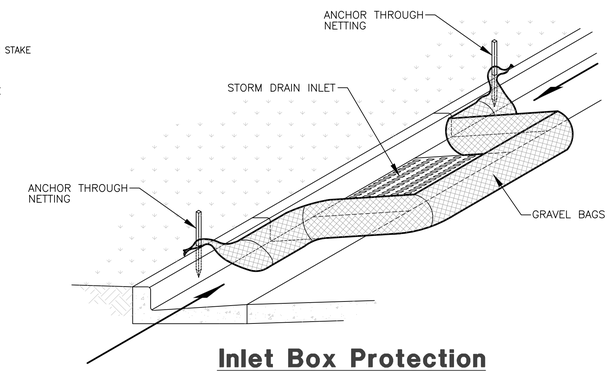


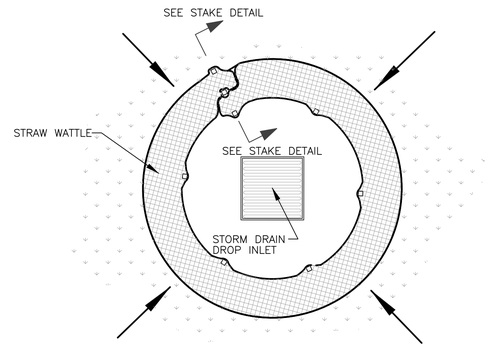
Figure 1:
Top View of
Roll–to–Roll Connection

Silt Fence Detail

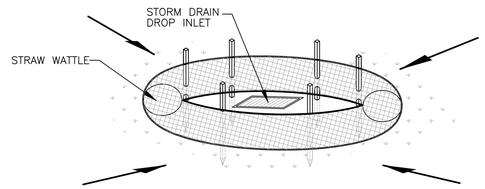
SCALE: NONE



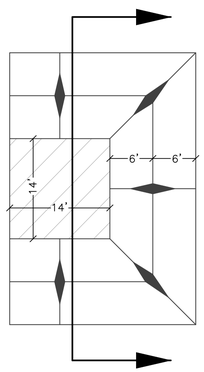
Inlet Box Protection

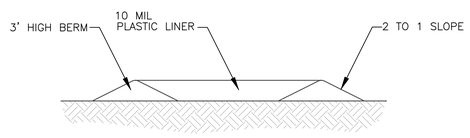


Plan View



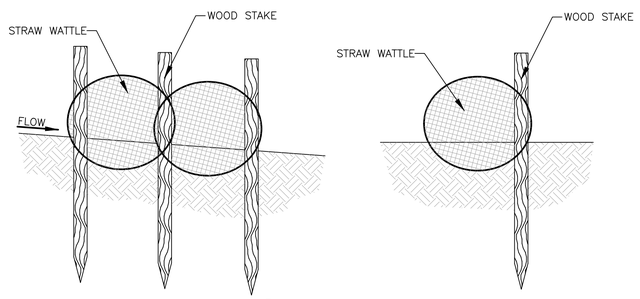
Drop Inlet Protection





Concrete Washout Area w/ 10 mil Plastic Liner

SCALE: NONE



Stake Detail

Reeve & Associates, Inc.
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REVISIONS

DATE	DESCRIPTION
03–18–24 ZD	County Comments
04–04–24 ZD	County Comments
04–16–24 ZD	Revised Culdesac
05–16–24 ZD	County Comments

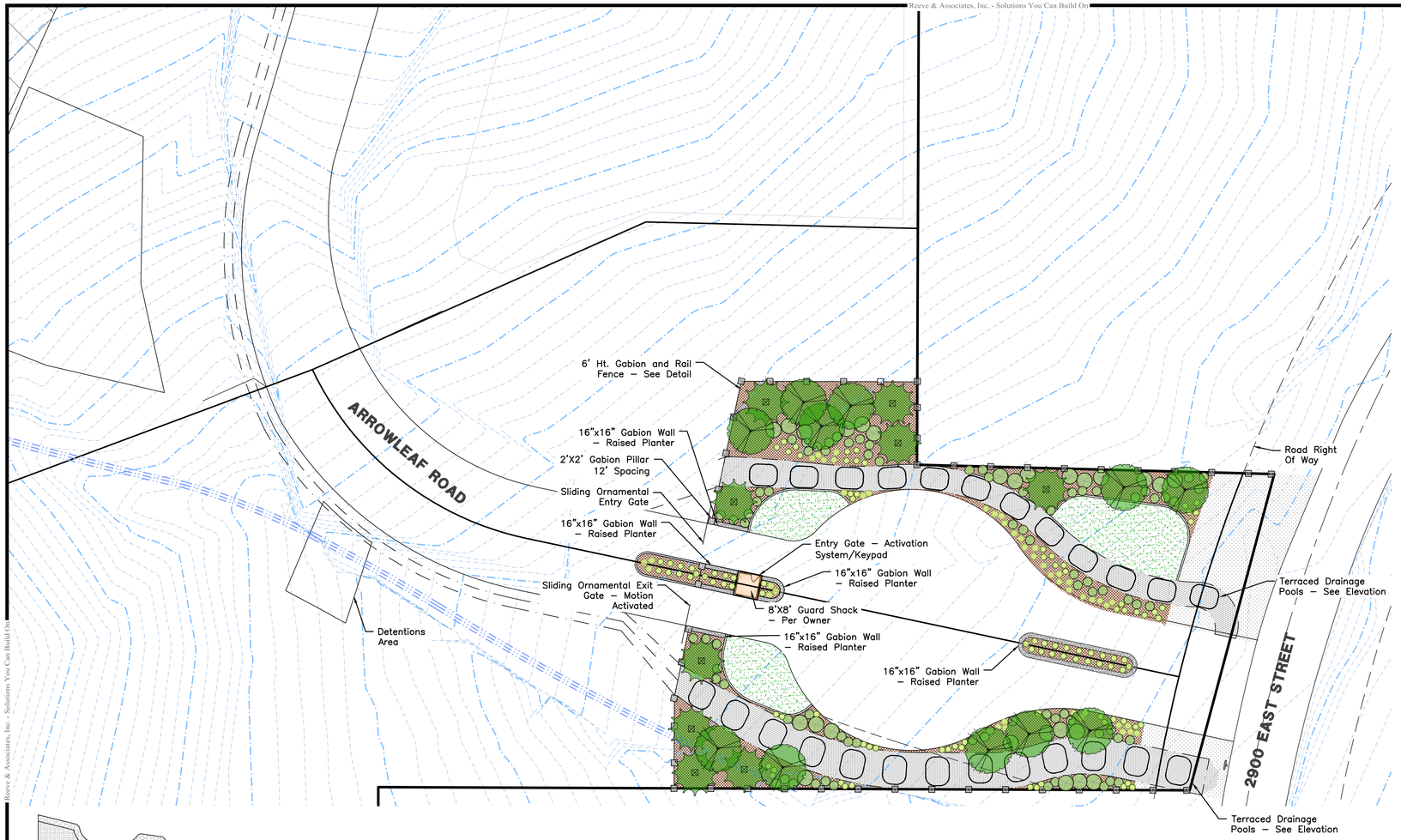
Arrowleaf
PART OF THE SECTION 18, T.7N., R.1E., S.L.B & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Storm Water Pollution Prevention Plan Details

REGISTERED PROFESSIONAL ENGINEER
5338480
JEREMY A. DRAPER
05/16/2024
STATE OF UTAH

Project Info.
Engineer: JEREMY A. DRAPER, P.E.
Drafter: Z. DECARIA
Begin Date: FEBUARY 2023
Name: ARROWLEAF
Number: 7895–01

14
15 Total Sheets



TERRACED DRAINAGE

NTS – ELEVATION

PLANT TABLE

TREES

Quantity	Symbol	Scientific Name	Common Name	Size
11		Acer ginnala 'Flame'	Amur Maple	2" cal.
9		Picea pungens 'Fastigiata'	Columnar Blue Spruce	6' Ht

SHRUBS

Quantity	Symbol	Scientific Name	Common Name	Size
26		Cornus sericea 'Insanti'	Insanti Dwarf Dogwood	5 gal.
80		Potentilla fruiticosa 'Gold Drop'	Gold Drop Cinquefoil	5 gal.

PERENNIALS

Quantity	Symbol	Scientific Name	Common Name	Size
99		Balsamorhiza sagittata	Arrow–leaved balsamroot	1 gal.
46		Nepeta x faassenii 'Walker's Low'	Walker's Low Catmint	1 gal.

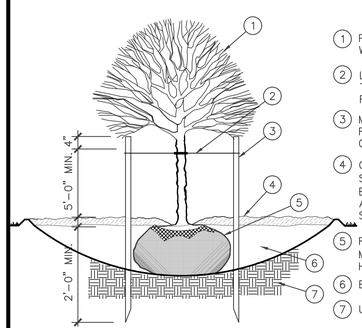
OTHER

Symbol	Description	Type
	Turf Grass – Sod Kentucky Bluegrass Mix – 3 Species Minimum	Sod
	Wood Mulch – Medium Chunk Place mulch over 5 ounce Professional weed barrier cloth in all planting beds. Contractor to provide samples to owner for approval prior to delivery.	1" Diameter 3" Depth
	Rock Mulch Place mulch over 5 ounce Professional weed barrier cloth in all planting beds. Contractor to provide samples to owner for approval prior to delivery.	4" Diameter 3" Depth
	Concrete Mow Strip	6"x6"
	Seed Mix – Non–Irrigated seed mix – see schedule	Hydroseed

Seed Mix

Type	Botanical Name	Common Name	% by weight
Grass	Bromus marginatus	Mountain Brome	30
Grass	Elymus trachycaulus ssp. Trachycaulus	Slender Wheatgrass	25
Grass	Poa secunda ssp. Sandbergii	Sandberg Bluegrass	5
Grass	Poa secunda ssp. Ampla	Big Bluegrass	5
Grass	Festuca ovina	Sheep fescue	5
Grass	Pascopyrum smithii	Western Wheatgrass	20
Grass	Pseudoroegneria spicata ssp. Inermis	Beardless Bluebunch Wheatgrass	10

Note: Hydroseed 25 lbs of seed per Acre

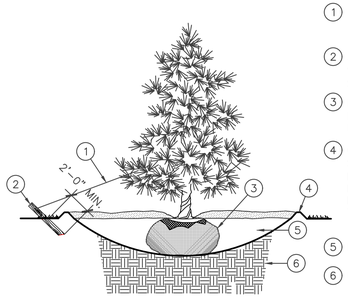


1. PRUNE ALL DEAD AND INJURED WOOD. DO NOT CUT LEADER.
2. LOOSELY TIE TO ALLOW FOR TREE MOVEMENT, BUT SECURED FOR HIGH WIND CONDITIONS.
3. METAL T–POSTS, 2 PER TREE. REMOVE POSTS & TIES AFTER ONE YEAR.
4. CONSTRUCT 4" EARTH BERM SAUCER. FILL WITH 3" BARK/ROCK MULCH. BRUSH AWAY FROM TRUNK. REMOVE SAUCER AFTER ONE YEAR.
5. REMOVE BURLAP/PACKAGING MAT. PLANT TREES 2"–3" HIGHER THAN GRADE.
6. BACKFILL WITH NATIVE SOIL
7. UNDISTURBED SOIL

NOTE: DIG HOLE THREE TIMES THE WIDTH AND AS DEEP AS ROOTBALL, EXCEPT WHERE NOTED.

DECIDUOUS TREE PLANTING

NTS

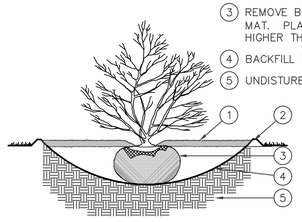


1. LOOSELY TIE TO ALLOW FOR TREE MOVEMENT, BUT SECURED FOR HIGH WIND CONDITIONS
2. 4' x 2" x 2" STAKE AND GUY WIRE (ONE EA. TREE) REMOVE STAKES AFTER ONE YEAR
3. REMOVE BURLAP/PACKAGING MAT. PLANT TREES 2"–3" HIGHER THAN GRADE
4. CONSTRUCT 4" EARTH BERM SAUCER. FILL WITH 3" BARK/ROCK MULCH – BRUSH MULCH AWAY FROM TRUNK. REMOVE SAUCER AFTER ONE YEAR
5. BACKFILL WITH NATIVE SOIL
6. UNDISTURBED SOIL

NOTE: DIG HOLE THREE TIMES THE WIDTH AND AS DEEP AS ROOTBALL, EXCEPT WHERE NOTED.

CONIFEROUS TREE PLANTING

NTS

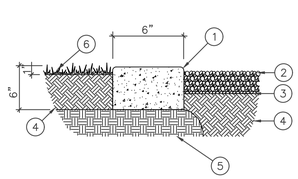


1. 3" OF BARK/ROCK MULCH. BRUSH AWAY FROM STEM
2. 3" EARTH BERM SAUCER. REMOVE AFTER ONE YEAR
3. REMOVE BURLAP/PACKAGING MAT. PLANT SHRUBS 2"–3" HIGHER THAN GRADE.
4. BACKFILL WITH NATIVE SOIL
5. UNDISTURBED SOIL

NOTE: DIG HOLE THREE TIMES THE WIDTH AND AS DEEP AS ROOTBALL, EXCEPT WHERE NOTED.

SHRUB PLANTING

NTS



1. 6"X6" CONCRETE MOW STRIP WITH RADIUS EDGES
2. BARK/ROCK MULCH
3. FINISH GRADE/WEED FABRIC
4. TOPSOIL
5. COMPACTED SUBGRADE
6. LAWN

CONCRETE MOW STRIP

NTS

PLANTING NOTES

1. This planting plan is diagrammatic and plant locations are approximate.
2. Field survey, stake, and string the layout and locations of site construction features for approval before actual construction. The layout shall conform to the exact location and grades of the intended work to be done.
3. Coordinate all aspects of the planting plans with the irrigation system and call the attention of the owners representative to any conflict in placement of plants in relation to sprinkler heads, lines and valves at the time the landscape installation phase takes place.
4. Finish grade of soil in lawn areas shall be 2" below pads, walks, paving, headers and curbs to accommodate sod. Grades in areas when seeded shall be 1" lower than adjacent edge.
5. Native topsoil shall be stockpiled and stored on site whenever possible for use in landscape areas.
6. All sod areas shall receive a minimum 4" depth of native topsoil and shrub beds shall receive a minimum of 8" of native topsoil.
7. Imported topsoil, when required, shall come from a reputable source, have a loam consistency and be free of weeds and debris.
8. Face each shrub to give the most pleasing look as seen from a line perpendicular to the wall or walk to/from which it is viewed.
9. Edging or Curbing shall be installed as shown on the plan to separate grass from shrub beds.
10. Shrub beds shall drain properly to prevent standing water from occurring. Call improperly draining planters or planting beds to the attention of the owners representative before planting. Provide positive drainage away from all structures and walls. Slope landscape areas 2% minimum.
11. Place mulch in all shrub beds and perennial areas. See schedule for depth and type. Do not crowd out small perennial plants with excessive mulch.
12. Provide a 3' minimum diameter circle "tree ring" around trees that are placed within lawn areas. Place a 3" min. depth of mulch. Use shredded bark mulch or match mulch being used for shrub beds.
13. The contractor shall maintain all work until work is complete and accepted by the Owner. The contractor shall maintain and guarantee all work for a period of THIRTY DAYS from the date of final acceptance by the Owner. Maintenance shall include mowing, weeding, fertilizing and irrigating.

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REVISIONS

DATE	DESCRIPTION

Arrowleaf

PART OF THE SECTION 18, T.7N., R.1E., SLLB & M., U.S. SURVEY
EDEN, WEBER COUNTY, UTAH

Entry Landscape

LICENSED LANDSCAPE ARCHITECT
6431801
NATHAN C. PETERSON
05/16/2024
STATE OF UTAH

Project Info.

Engineer: JEREMY A. DRAPER, P.E.
Drafter: N. PETERSON
Begin Date: JUNE 2022
Name: ARROWLEAF
Number: 7895–01

15

15 Total Sheets

SPECIAL INSPECTION REQUIREMENTS

- SOILS
- CONCRETE
- SEE SPECIFIC DISCIPLINE DRAWINGS FOR ADDITIONAL DESIGNATED SEISMIC SYSTEMS REQUIRING SPECIAL INSPECTION WHICH ARE NOT CONTAINED IN THE STRUCTURAL DRAWINGS.

1. SPECIAL INSPECTION AND TESTING AS REQUIRED BY THE IBC SHALL BE PROVIDED BY AN INDEPENDENT AGENCY EMPLOYED BY THE OWNER UNLESS WAIVED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE REQUIRED INSPECTIONS/TESTS AS INDICATED BELOW, REFERRING TO THE IBC SECTION INDICATED AS APPROPRIATE.
2. SPECIAL INSPECTION REPORTS FROM THE INSPECTOR SHALL BE SENT TO THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL.
   - 2.1. BRING ANY DISCREPANCIES TO THE CONTRACTOR'S IMMEDIATE ATTENTION.
   - 2.2. NOTIFY THE ENGINEER OF ANY NON-PASSING WORK THAT THE CONTRACTOR CANNOT READILY CORRECT.
   - 2.3. ANY UNCORRECTED DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND BUILDING OFFICIAL PRIOR TO COMPLETION OF THAT PHASE OF THE WORK.
   - 2.4. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTIONS OF ANY DISCREPANCIES SHALL BE PROVIDED.
3. SPECIAL INSPECTORS
   - 3.1. SPECIAL INSPECTORS SHALL BE QUALIFIED PERSONS WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

REQUIRED SPECIAL INSPECTION AND TESTS OF CONCRETE CONSTRUCTION TABLE 1705.3

TYPE	FREQUENCY OF INSPECTION		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	-	X	ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND c. INSPECT ALL OTHER WELDS	- X	X X	AWS D1.4, ACI 318: 26.6.4	-
3. INSPECT ANCHORS CAST IN CONCRETE	-	X	ACI 318: 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a	X	 X	ACI 318: 17.8.2.4 ACI 318: 17.8.2.4	- -
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR; a. APPLICATION OF PRESTRESSING FORCES; AND b. GROUTING OF BONDED PRESTRESSING TENDONS.	X X	- -	ACI 318: 26.10	-
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: 26.9	-
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST - TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	-	X	ACI 318: 26.11.2	-
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	-	X	ACI 318: 26.11.1.2(b)	-

FOR SI: INCH = 25.4MM.
a. WHERE APPLICABLE, SEE SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS TABLE 1705.6

TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

GENERAL NOTES:

1. VISITS TO THE JOB SITE BY REPRESENTATIVES OF THE ENGINEER DO NOT SUBSTITUTE APPROVAL OF THE WORK PERFORMED BY THE CONTRACTOR OR HIS SUBCONTRACTORS AND ARE MERELY FOR THE PURPOSE OF OBSERVING THE WORK PERFORMED.
2. CONTRACTOR SHALL NOTIFY ENGINEER/ARCHITECT OF ANY DISCREPANCIES, OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN ALL CASES, UNLESS OTHERWISE DIRECTED, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN AND BE PERFORMED.
3. CONTRACTOR SHALL VERIFY ALL CONDITIONS, DIMENSIONS AND ELEVATIONS, ETC., AT THE SITE AND SHALL COORDINATE WORK PERFORMED BY ALL TRADES. SEE ARCHITECT'S PLANS FOR DIMENSIONS. DO NOT SCALE DRAWINGS
4. SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER/ARCHITECT PRIOR TO FABRICATION OR ERECTION FOR ANY PREFABRICATED OR MANUFACTURER-DESIGNED COMPONENTS AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THIS STRUCTURE RESIDES.
5. SIZES, LOCATIONS, LOADS, AND ANCHORAGES OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO FABRICATION OR INSTALLATION OF SUPPORTING STRUCTURES.
6. TEMPORARY BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY, OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE INSTALLED.
7. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOAD.
8. CONTRACTOR AND ALL SUBCONTRACTORS SHALL PERFORM THEIR TRADES AND DUTIES IN A MANNER CONFORMING TO THE PROCEDURES AND REQUIREMENTS AS STATED IN THE 2021 INTERNATIONAL BUILDING CODE, OR LATEST ACCEPTED CODE ADOPTED BY THE LOCAL BUILDING OFFICIALS).
9. ANY SPECIAL INSPECTIONS REQUIRED BY THE BUILDING OFFICIAL OR THE INTERNATIONAL BUILDING CODE ARE THE RESPONSIBILITY OF THE OWNER.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.

FOOTINGS, FOUNDATIONS AND SLAB ON GRADE NOTES:

1. ALL FOOTING SIZES ARE BASED ON AN ALLOWABLE SOIL BEARING PRESSURE AS SHOWN IN THE DESIGN CRITERIA. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THOSE USED FOR DESIGN OF FOOTINGS AS OUTLINED IN WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING.
2. SOIL PREPARATION UNDER FOOTINGS AND SLABS ON GRADE SHALL BE IN ACCORDANCE WITH THE SOILS REPORT. FOR PROJECTS WITHOUT A SOILS REPORT CONTRACTOR/OWNER IS TO VERIFY ADEQUATE SOIL CONDITIONS ARE PROVIDED.
3. ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE SOIL OR ENGINEERED GRANULAR FILL COMPACTED TO 95% OF MAX. DENSITY, BASED ON ASTM D 1557 METHOD OF COMPACTION. FILL SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX INCHES IN DEPTH AFTER COMPACTION AND SHALL EXTEND DOWN TO IN-SITU SOILS. FILL SHALL BE COMPACTED UNDER ALL CONCRETE WORK ON THE SITE.
4. NO FOOTINGS SHALL BE PLACED IN WATER, SNOW, FROZEN GROUND, OR UNSTABLE SOILS.
5. ALL EXCAVATIONS ADJACENT TO AND BELOW FOOTING ELEVATION FOR OTHER TRADES SHALL BE ACCOMPLISHED PRIOR TO POURING ANY FOOTINGS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR LATERALLY SUPPORTING ALL RETAINING TYPE FOUNDATION WALLS WHILE COMPACTING BEHIND WALLS AND UNTIL ALL SUPPORTING MEMBERS HAVE BEEN PLACED (SUCH AS FLOOR).
7. ALL REINFORCEMENTS SHALL BE SECURELY TIED IN PLACE PRIOR TO POURING CONCRETE.
8. PROVIDE DOWELS IN FOOTING AND FOUNDATIONS TO MATCH ALL VERTICAL BARS IN WALLS AND COLUMNS ABOVE, UNLESS NOTED OTHERWISE.
9. PROVIDE CONTROL JOINTS IN SLABS AT A MAX. OF 15 FT. O.C. EACH WAY AND AS SHOWN ON PLANS. AT EXTERIOR SLABS AND GARAGE FLOORS POUR SLABS BETWEEN CONTROL JOINTS SO THAT ADJACENT POURS ARE STAGGERED AT LEAST TWO DAYS APART.
10. ALL EXTERIOR FOOTINGS MUST BEAR AT OR BELOW FROST DEPTH, MEASURED FROM LOWEST ADJACENT FINAL GRADE.
11. UNLESS NOTED OTHERWISE, ALL FOOTINGS AT COLUMNS TO BE CENTERED BELOW COLUMNS.
12. UNLESS NOTED OTHERWISE, ALL FOOTINGS SHALL HAVE VERTICAL FACES FORMED WITH STANDARD FORMING MATERIALS (WOOD, METAL, ETC.). WITH PRIOR APPROVAL OF ARCHITECT AND ENGINEER, CONCRETE FOR FOOTINGS CAN BE PLACED IN EXCAVATED "SOIL" FORMS PROVIDED THAT THE DIMENSIONS ARE INCREASED 3" ON EACH SIDE.
13. SLABS ON GRADE SHALL BE 4 INCHES THICK CONCRETE UNDERLAIN BY FREE DRAINING MATERIAL.

CONCRETE NOTES:

1. ALL COLUMNS, RETAINING WALLS AND ALL EXTERIOR FLATWORK, CURBS, GUTTERS, ETC., SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,000 LBS. PER SQUARE INCH WITHIN 28 DAYS AFTER POURING.
2. ALL SUSPENDED SLABS AND BEAMS SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO AT LEAST 4,500 LBS. PER SQUARE INCH WITHIN 28 DAYS AFTER POURING.
3. ALL FOOTINGS, FOUNDATIONS, INTERIOR SLABS ON GRADE, AND SUSPENDED SLABS ON DECK SHALL BE NORMAL WEIGHT CONCRETE WITH A COMPRESSIVE STRENGTH EQUAL TO A LEAST 3,000 LBS. PER SQUARE INCH WITHIN 28 DAYS AFTER POURING.
4. UNLESS OTHERWISE NOTED, ALL FOUNDATION WALL VERTICAL COLD JOINTS SHALL BE KEYED WITH A KEY 1-1/2" DEEP, A LENGTH 2" LESS THAN THE MEMBER, AND A WIDTH 1/2 OF THE MEMBER. REINFORCING SHALL BE CONTINUOUS THRU JOINT.
5. ALL OPENINGS IN CONCRETE WALLS SHALL BE REINFORCED WITH (2) #5 BARS EXTENDING 2'-0" MIN. BEYOND THE EDGE OF THE OPENING AT EACH FACE OF OPENING.
6. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.
7. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
8. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND FORMWORK.
9. REFER TO ARCHITECTURAL DRAWINGS FOR MOLDS, GROOVES, ORNAMENT, CLIPS OR GROUNDS, REQUIRED TO BE ENCASED IN CONCRETE AND FLOOR LOCATION OF FLOOR FINISHES AND SLAB DEPRESSIONS.
10. FOR STEPS IN FOUNDATION GREATER THAN 2 FEET, WRAP CORNER W/(2) #4 BARS EXTENDING 18" EACH DIRECTION.
11. STRUCTURAL CONCRETE HAS BEEN DESIGNED AT 2,500 LBS. PER SQUARE INCH AND SPECIFIED AT A HIGHER STRENGTH CONCRETE AS STATED ABOVE. NO SPECIAL INSPECTIONS ARE REQUIRED PER IBC SECTION 1705.3.

REINFORCING STEEL NOTES:

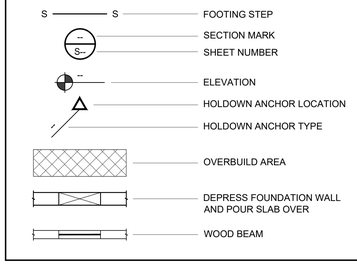
1. ALL REINFORCING BARS SHALL CONFORM TO ASTM STANDARD A-615 GRADE 60. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM STANDARD A-185, SHALL BE SUPPLIED IN FLAT SHEETS AND SHALL HAVE A MIN. SIDE LAP OF 8 INCHES. ADEQUATELY TIE AND SUPPORT ALL REINFORCING STEEL AS SPECIFIED BY ACI 315 TO MAINTAIN EXACT REQUIRED POSITION. ALL FIELD BENT DOWELS SHALL BE GRADE 40 WITH SPACING INDICATED REDUCED BY 1/3.
2. REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVERAGE:
   - A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH_____3"
   - B. EXPOSED TO EARTH OR WEATHER:
     - #6 & LARGER_____2"
     - #5 & SMALLER_____1 1/2"
   - C. NOT EXPOSED TO WEATHER OR EARTH:
     - SLABS, WALLS, JOISTS, #11 & SMALLER_____3/4"
     - BEAMS, COLUMNS: MAIN REINFORCING OR TIES_____1 1/2"
   - D. SLAB ON GRADE:
     - PLACE REINFORCING AT CENTER OF SLAB UNLESS INDICATED OTHERWISE.
3. EXCEPT WHERE NOTED, CONTINUOUS REINFORCEMENT SHALL BE SPLICED AT POINTS OF MIN. STRESS BY LAPPING 44 BAR DIAMETERS IN CONCRETE AND 50 BAR DIAMETERS IN MASONRY.
4. ALL VERTICAL REINFORCING SHALL BE DOWELED TO FOOTINGS OR STRUCTURE BELOW WITH DOWELS TO MATCH. SPLICE LENGTHS SHALL COMPLY WITH NOTE 3. DOWELS INTO FOOTINGS SHALL TERMINATE WITH A STANDARD HOOK, AND SHALL EXTEND TO WITHIN 4" OF THE BOTTOM OF THE FOOTING, BUT NOT MORE THAN 20" INTO FOOTING.
5. DO NOT WELD REINFORCING EXCEPT AS NOTED ON PLANS. WHERE REINFORCING IS WELDED, USE ASTM A706 REINFORCING.

BASIS OF DESIGN

1. GOVERNING CODE	2021 IBC		
2. ROOF LOADS			
2.A. LIVE	100	PSF	
2.B. DEAD	150	PSF	
2.C. SOIL	H	=	135 PSF
3. ROOF SNOW LOAD DATA			
3.A. GROUND SNOW LOAD	P_G	=	82 PSF
4. EARTHQUAKE DESIGN DATA			
4.A. RISK CATEGORY	III		
4.B. SEISMIC IMPORTANCE FACTOR	I_e	=	1.25
4.C. MAPPED SPECTRAL RESPONSE ACCELERATION PERAMETERS	S_S	=	1.155g
	S_1	=	0.422g
4.D. SITE CLASS	D (ASSUMED)		
4.E. DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS	S_{DS}	=	0.924g
	S_{D1}	=	0.528g
4.F. SEISMIC DESIGN CATEGORY	D		
4.G. BASIC SEISMIC FORCE-RESISTING SYSTEM	WOOD SHEAR WALL		
4.H. DESIGN BASE SHEAR	V	=	C_sW
4.I. SEISMIC RESPONSE COEFFICIENT	CS	=	0.616
4.J. RESPONSE MODIFICATION COEFFICIENT	R	=	1.5
4.K. ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE PROCEDURE		
5. GEOTECHNICAL INFORMATION			
5.A. SOIL REPORT BY: NA			
REPORT #:			
DATE:			
5.A. FROST DEPTH	40" MIN.		
5.B. SOIL BEARING PRESSURE	1500 PSF		

LEGEND OF SYMBOLS AND ABBREVIATIONS

AB.	=	ANCHOR BOLT
ABV.	=	ABOVE
ARCH.	=	ARCHITECT
BN.	=	BOUNDARY NAILING
BLW.	=	BELOW
CL.	=	CENTERLINE
CMU.	=	CONCRETE MASONRY UNIT
COL.	=	COLUMN
CONC.	=	CONCRETE
CONT.	=	CONTINUOUS
DBA.	=	DEFORMED BAR ANCHOR
EN.	=	EDGE NAILING
EQ.	=	EQUAL
ELEV.	=	ELEVATION
EW.	=	EACH WAY
FDN.	=	FOUNDATION
FN.	=	FIELD NAILING
FTG.	=	FOOTING
GLB.	=	GLUELAM BEAM
HORIZ.	=	HORIZONTAL
IBC.	=	INTERNATIONAL BUILDING CODE
HSA.	=	HEADED STUD ANCHOR
LLH.	=	LONG LEG HORIZONTAL
LLV.	=	LONG LEG VERTICAL
MAX.	=	MAXIMUM
MECH.	=	MECHANICAL
MIN.	=	MINIMUM
OAE.	=	OR APPROVED EQUAL
O.C.	=	ON CENTER
OPP.	=	OPPOSITE
PSW.	=	PERFORATED SHEAR WALL
PL.	=	PLATE
PLM.	=	PARALLAM
REINF.	=	REINFORCEMENT
REQD.	=	REQUIRED
SCHED.	=	SCHEDULE
STRUCT.	=	STRUCTURAL
SW.	=	SHEAR WALL
SIM.	=	SIMILAR
SQ.	=	SQUARE
TN.	=	TOE NAIL
TYP.	=	TYPICAL
UNO.	=	UNLESS NOTED OHERWISE
VERT.	=	VERTICAL



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Date: Description:

100,000 GALLON CONCRETE WATER TANK
ARROWLEAF SUBDIVISION - 4665 N. 2900 EAST EDEN, UTAH

GENERAL STRUCTURAL NOTES

IF SIGNATURE IS NOT VALID IF SIGNATURE IS NOT SIGNED IN RED INK
PROFESSIONAL ENGINEER
JASON M. GUDMUNDSON
11/09/2023
7914241
STATE OF UTAH
STRUCTURAL DRAWINGS ONLY

Project Info.
Engineer: J.M.G.
Drafter: A.W.B.
Begin Date: NOVEMBER 6, 2023
Number: 7895-01

Sheet S1 of S4 Sheets

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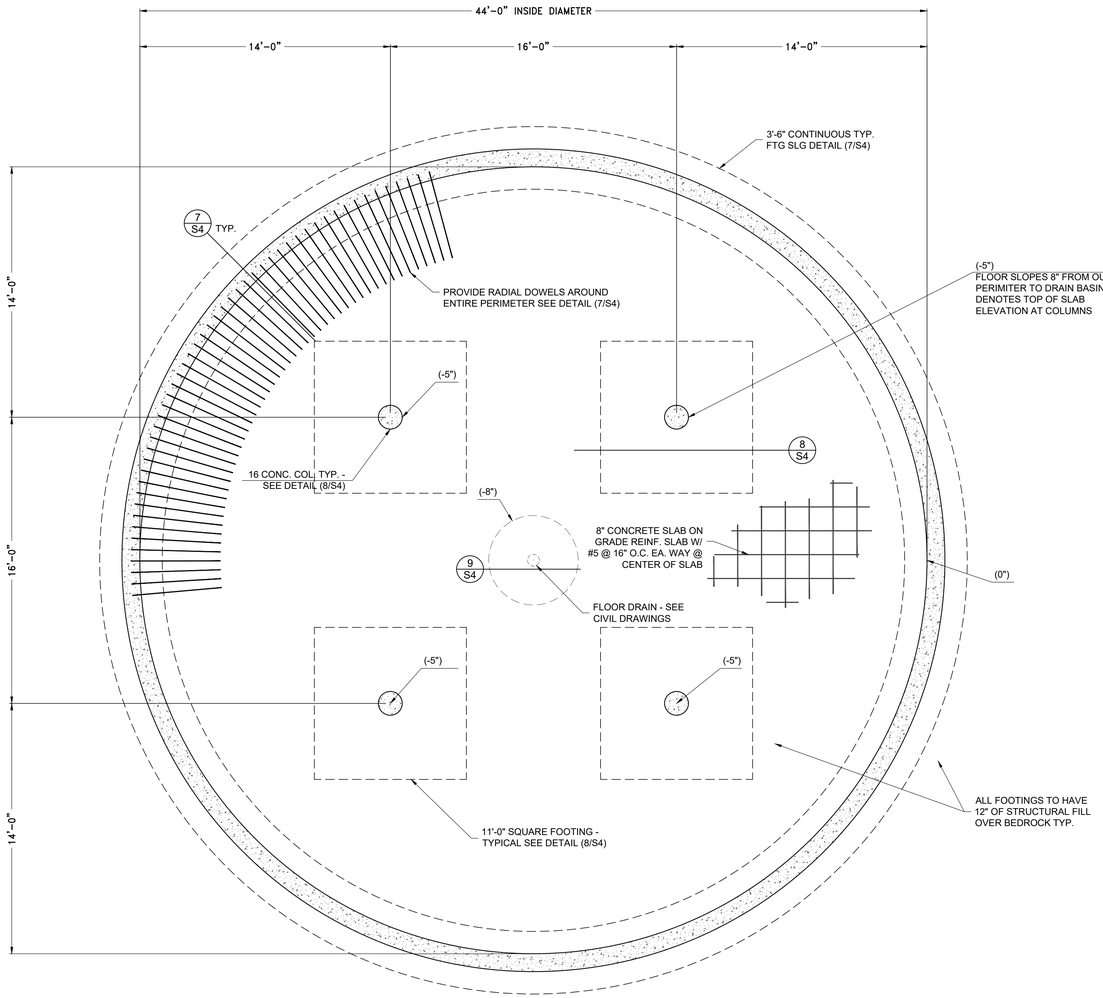

1 FOOTING & FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

CONCRETE FOOTING NOTES:
1. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER, UNLESS NOTED OTHERWISE.
2. TOP REINFORCING, WHERE SPECIFIED, SHALL BE PLACED IN THE TOP OF THE FOOTING WITH 2" MINIMUM CONCRETE COVER.
3. IF FOOTINGS ARE EARTH FORMED, FOOTING WIDTH AND LENGTH SHALL BE 6" WIDER AND LONGER THAN SCHEDULED.
4. SEE GENERAL STRUCTURAL NOTES FOR ALL OTHER REQUIREMENTS.

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FOOTING & FOUNDATION PLAN

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Sheet S2 | S4 Sheets

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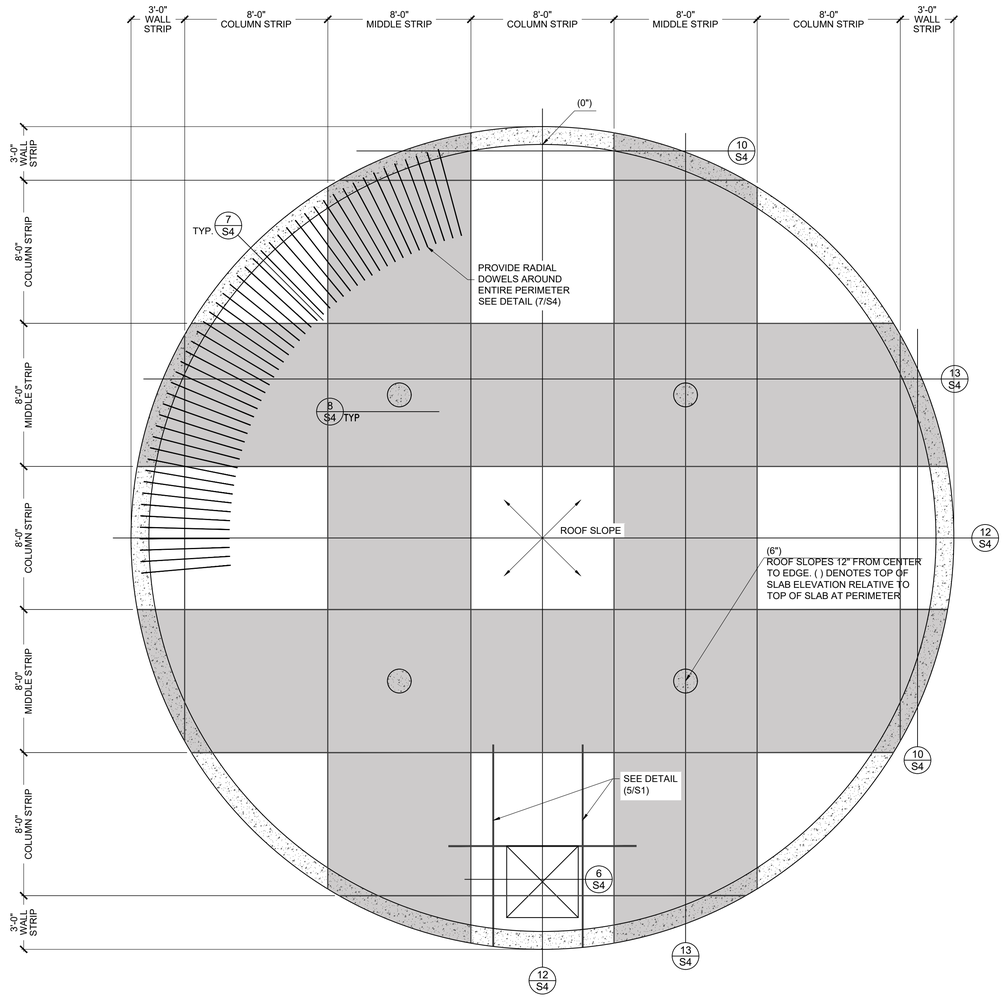

1 ROOF SLAB PLAN
SCALE: 1/4" = 1'-0"

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ROOF FRAMING PLAN

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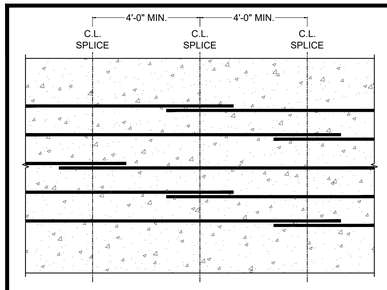
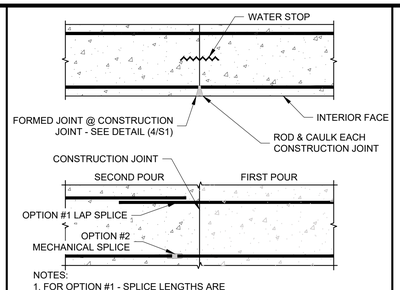
Sheet S3 | S4 Sheets



NOTES:
SPLICES MAY NOT COINCIDE VERTICALLY MORE FREQUENTLY THAN EVERY THIRD BAR.

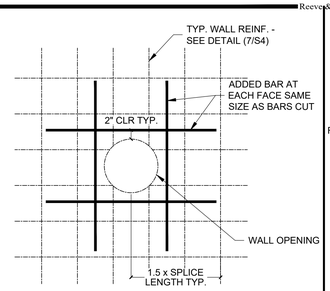
SPLICE LENGTHS
#5 BARS - 39"
#6 BARS - 46"

1 REINF. BAR SPLICE DETAIL TYP.
SCALE: NONE



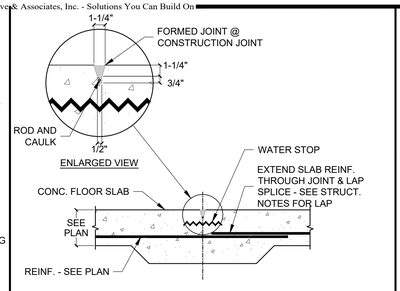
NOTES:
1. FOR OPTION #1 - SPLICE LENGTHS ARE
A. #5 BARS - 39"
B. #6 BARS - 46"
2. FOR OPTION #2 - USE MECHANICAL CONNECTORS WHICH ACHIEVE 125% OF THE STRENGTH OF THE BARS BEING SPLICED. SUBMIT A CURRENT ICC RESEARCH REPORT FOR APPROVAL PRIOR TO CONSTRUCTION.

2 CONST. JOINT IN WALL DETAIL TYP.
SCALE: NONE



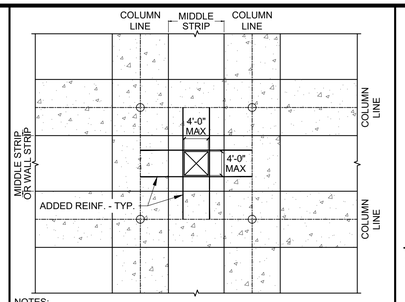
NOTES:
NO MORE THAN (2) BARS EA. DIRECTION CAN BE CUT. MAX. OPENING SIZE = (3x BAR SPACING) - 4" - SEE CIVIL DRAWINGS FOR EXACT LOCATIONS OF OPENINGS

3 TYPICAL WALL OPENING DETAIL
SCALE: NONE



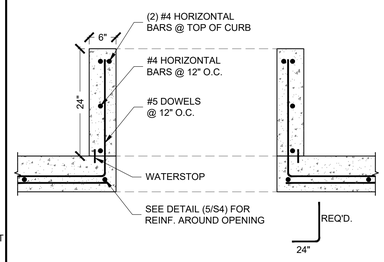
NOTES:
IT IS NOT ANTICIPATED THAT THIS DETAIL WILL BE REQ'D. IT IS ONLY PROVIDED TO GIVE THE CONTRACTOR THE OPTION OF POURING THE FLOOR WITH MULTIPLE POURS

4 TYP. CONST. JOINT IN FLOOR SLAB DETAIL
SCALE: NONE

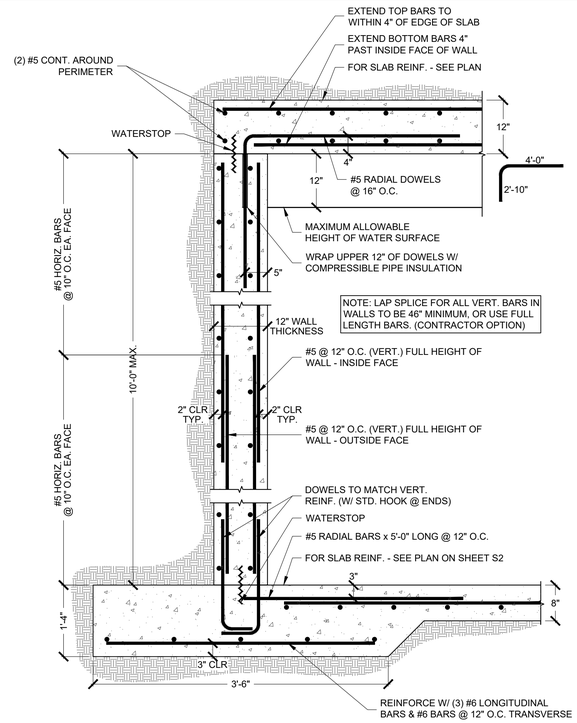


NOTES:
1. ADD REINFORCING ON ALL SIDES OF OPENING EQUAL TO 1/2 THE AMOUNT CUT IN THAT DIRECTIONS. ADDED BARS TO EXTEND TO COLUMN LINES AS SHOWN.
2. OPENINGS MAY ONLY OCCUR @ INTERSECTIONS OF MIDDLE STRIPS (OR INTERSECTION OF MIDDLE STRIP WITH WALL STRIP) AS SHOWN.

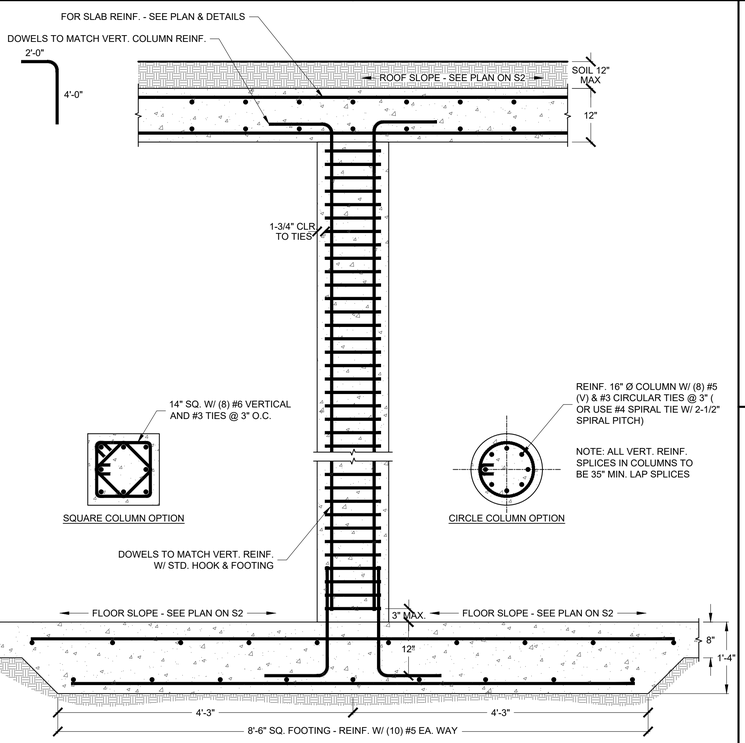
5 ROOF OPENING DETAIL TYP.
SCALE: NONE



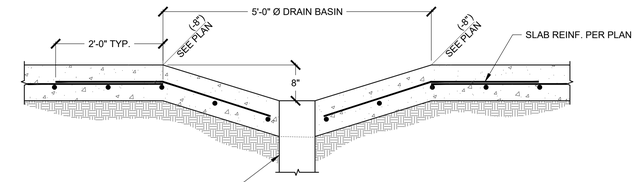
6 WALL SECTION AT ROOF OPENING
SCALE: NONE



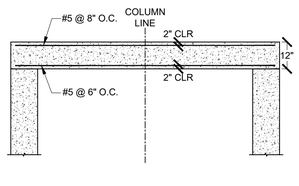
7 TYPICAL RESERVOIR WALL SECTION
SCALE: NONE



8 TYPICAL INTERIOR COLUMN
SCALE: NONE



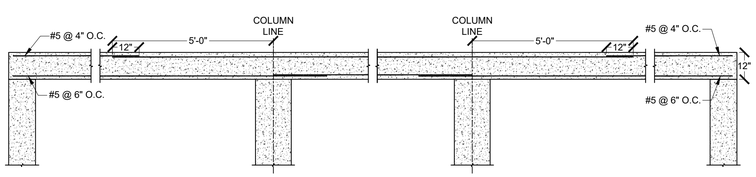
9 DRAIN BASIN
SCALE: NONE



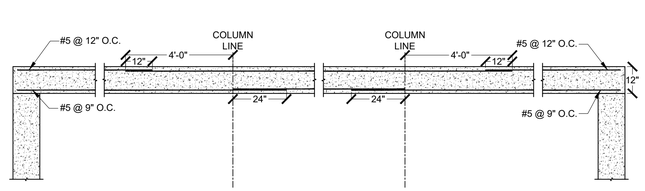
10 WALL STRIP (EACH DIRECTION)
SCALE: NONE

NOT USED

11 DETAIL
SCALE: NONE



12 COLUMN STRIP (EACH DIRECTION)
SCALE: NONE



13 MIDDLE STRIP (EACH DIRECTION)
SCALE: NONE

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STRUCTURAL DETAILS

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