



**General Notes:**

- ALL CONSTRUCTION MUST STRICTLY FOLLOW THE STANDARDS AND SPECIFICATIONS SET FORTH BY: GOVERNING UTILITY MUNICIPALITY, GOVERNING CITY OR COUNTY (IF UNINCORPORATED), 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.
- CONTRACTOR TO STRICTLY FOLLOW GEOTECHNICAL RECOMMENDATIONS FOR THIS PROJECT. ALL GRADING INCLUDING BUT NOT LIMITED TO CUT FILL, COMPACTION, ASPHALT SECTION, STRIPING, TRENCH EXCAVATION/BACKFILL, SITE GRUBBING, RETAINING WALLS AND FOOTINGS MUST BE DIRECTLY WITH PROJECT GEOTECHNICAL ENGINEER.
- TRAFFIC CONTROL, STRIPING & SIGNAGE TO CONFORM TO CURRENT GOVERNING AGENCIES TRANSPORTATION ENGINEER'S MANUAL AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.
- CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.
- AT ALL LOCATIONS WHERE EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.
- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT, ADOPTED EDITION OF ADA ACCESSIBILITY GUIDELINES.
- 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.
- CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND NOTIFYING ENGINEER OR INSPECTING AUTHORITY 48 HOURS IN ADVANCE OF COVERING UP ANY PHASE OF CONSTRUCTION REQUIRING OBSERVATION.
- 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.
- 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.
- CONTRACTOR MUST VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING AND BRING UP ANY QUESTIONS BEFOREHAND.
- SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH BY THE GEOTECHNICAL ENGINEER.
- CHANNEL SLOPES SHALL BE GRADED AS SPECIFIED ON GRADING PLANS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLAGGING, CAUTION SIGNS, LIGHTS, BARRICADES, FLAGMEN, AND ALL OTHER DEVICES NECESSARY FOR PUBLIC SAFETY.
- 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 BONDED 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.
- 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 DEEM APPROPRIATE. CONTRACTOR HAS RELIED AND IS RELYING ON HIS OWN EXAMINATION OF 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.
- CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL WATER, POWER, SANITARY FACILITIES AND TELEPHONE SERVICES AS REQUIRED FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.
- CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OWNER, ENGINEER, AND/OR GOVERNING AGENCIES.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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 IN ACCORDANCE WITH THE PROJECT 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 EXISTING IN THE CONSTRUCTION OF THE PARTICULAR FACILITIES WHICH MAY CREATE, DURING THE CONSTRUCTION PROGRAM, UNUSUAL 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL STRIPING AND/OR PAVEMENT MARKINGS NECESSARY TO THE EXISTING STRIPING INTO FUTURE STRIPING. METHOD OF REMOVAL SHALL BE BY GRINDING OR SANDBLASTING.
- 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.
- ALL EXISTING GATES AND FENCES TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL GATES AND FENCES FROM DAMAGE.

**Utility Notes:**

- 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.
- 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 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.
- 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.
- 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 CAUSED BY CONSTRUCTION OPERATIONS AT HIS EXPENSE.
- ALL VALVES AND MANHOLE COVERS SHALL BE RAISED OR LOWERED TO MEET FINISHED GRADE.
- CONTRACTOR SHALL CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX OR MANHOLE.
- CONTRACTOR SHALL GROUT AT CONNECTION OF PIPE TO BOX WITH NON-SHRINKING GROUT, INCLUDING PIPE VOIDS LEFT BY CUTTING PROTH FINISH.
- CONTRACTOR SHALL GROUT WITH NON-SHRINK GROUT BETWEEN GRADE RINGS AND BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX.
- 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.
- CONTRACTOR SHALL CLEAN ASPHALT, TAR OR OTHER ADHESIVES OFF OF ALL MANHOLE LIDS AND INLET GRATES TO ALLOW ACCESS.
- 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.
- 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.
- MAINTAIN A MINIMUM 18" VERTICAL SEPARATION DISTANCE BETWEEN ALL UTILITY CROSSINGS.
- CONTRACTOR SHALL START INSTALLATION AT LOW POINT OF ALL NEW GRAVITY UTILITY LINES.
- ALL BOLTED FITTINGS MUST BE GREASED AND WRAPPED.
- UNLESS SPECIFICALLY NOTED OTHERWISE, MAINTAIN AT LEAST 2 FEET OF COVER OVER ALL STORM DRAIN LINES AT ALL TIMES (INCLUDING DURING CONSTRUCTION).
- ALL WATER LINES SHALL BE INSTALLED A MINIMUM OF 60" BELOW FINISHED GRADE.
- 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.
- CONTRACTOR SHALL INSTALL THRUST BLOCKING AT ALL WATERLINE ANGLES AND AT ALL TRENCH ENDS.
- ALL UNDERGROUND UTILITIES SHALL BE IN PLACE PRIOR TO INSTALLATION OF CURB, GUTTER, SIDEWALK AND STREET PAVING.
- CONTRACTOR SHALL INSTALL MAGNETIC LOCATING TAPE CONTINUOUSLY OVER ALL NONMETALLIC PIPE.
- THRUST BLOCKS & RESTRAINED JOINTS WITH MECA-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 SURVEYOR 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 CONSTRUCTION AND ALL 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 MAINTAINED AT ALL TIMES UNTIL PROJECT CLOSE-OUT.

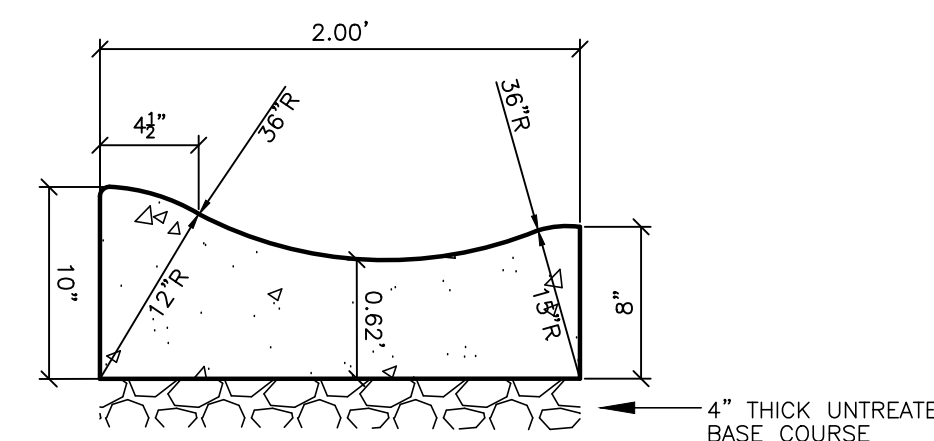
THE CONTRACTOR'S RESPONSIBILITY SHALL INCLUDE ON ALL EROSION CONTROL MEASURES TO DETERMINE REMOVAL IS NECESSARY. CHECKS SHALL BE DOCUMENTED INSPECTIONS KEPT ON SITE.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL EVENT. SEDIMENT SHOULD BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES THE HEIGHT OF BARRIER.

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

**EXPOSED SLOPES:**

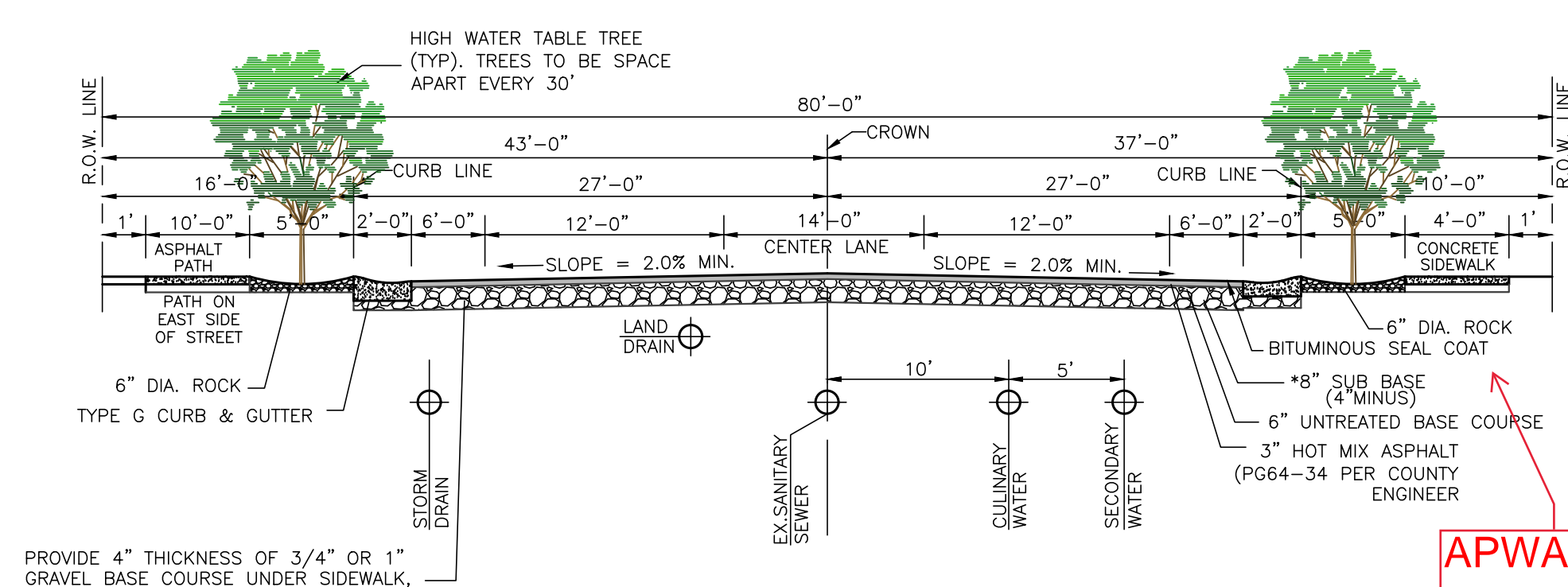
- ANY EXPOSED SLOPE THAT WILL REMAIN UNTOUCHED FOR LONGER THAN 14 DAYS MUST BE STABILIZED BY ONE OR MORE OF THE FOLLOWING METHODS:
- SPRAYING DISTURBED AREAS WITH A TACKIFIER VIA HYDROSEED
  - TRACKING STRIP PERPENDICULAR TO SLOPES
  - INSTALLING A LIGHT-WEIGHT, TEMPORARY EROSION CONTROL BLANKET



**APWA Type 'G' Curb**  
SCALE: NONE

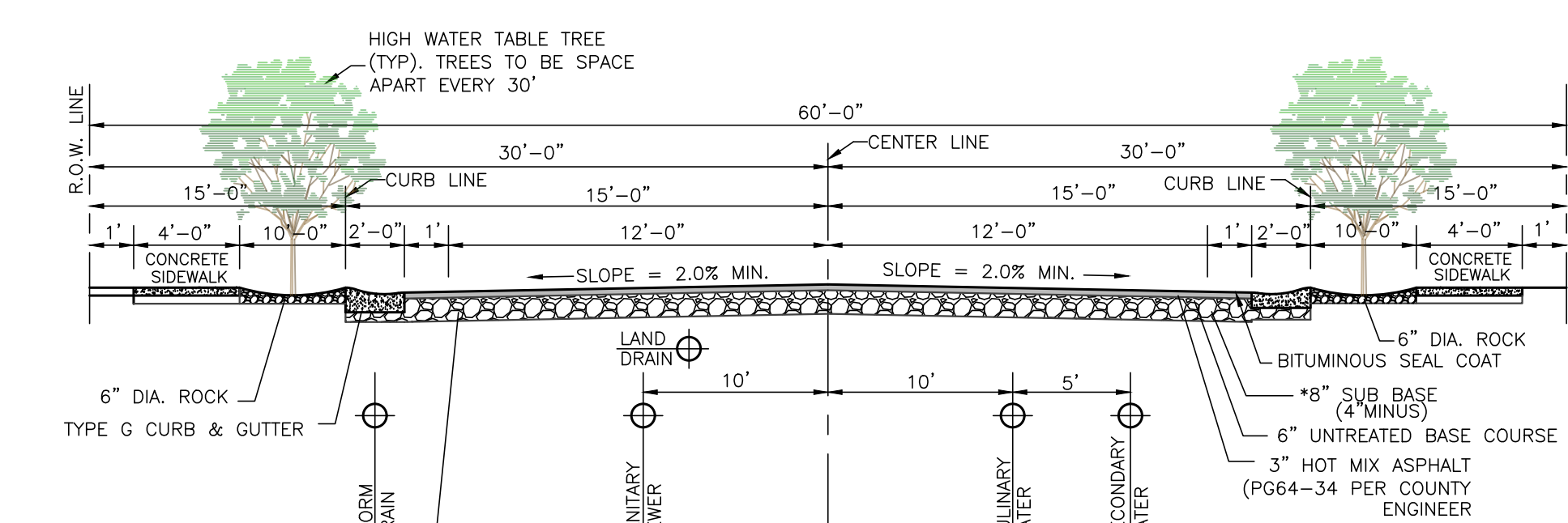
**Street Section Notes:**

- STREETS HEADING IN A EAST/WEST DIRECTION WILL HAVE A 10' PATH ON THE NORTH SIDE OF THE STREET.
- STREETS HEADING IN A NORTH/SOUTH DIRECTION WILL HAVE A 10' PATH ON THE EAST SIDE OF THE STREET.

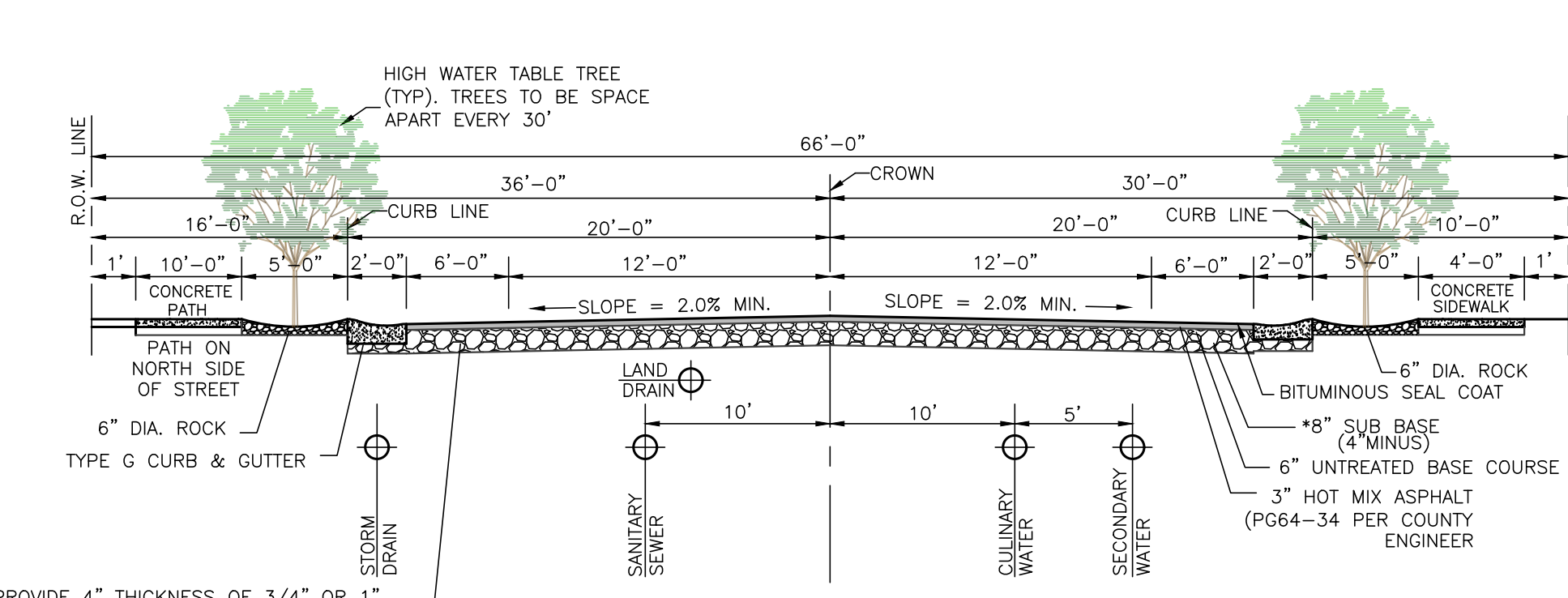


**Street Section (80' R.O.W.)**  
SCALE: NONE  
\*VERIFY LOCATION WITH PHONE, GAS AND POWER COMPANIES.

APWA spec type II



**Street Section (60' R.O.W.)**  
SCALE: NONE  
\*VERIFY LOCATION WITH PHONE, GAS AND POWER COMPANIES.



**Street Section (66' R.O.W.)**  
SCALE: NONE  
\*VERIFY LOCATION WITH PHONE, GAS AND POWER COMPANIES.

- SW LAT = PROPOSED SECONDARY WATER LATERAL
- LD LAT = PROPOSED LAND DRAIN LATERAL
- W LAT = PROPOSED WATER LATERAL
- SS LAT = PROPOSED SEWER LATERAL
- WZB = PROPOSED CULINARY WATER LINE
- EX.WZB = EXISTING CULINARY WATER LINE
- SWZB = PROPOSED SECONDARY WATER LINE
- EX.SWZB = EXISTING SECONDARY WATER LINE
- SSZB = PROPOSED SANITARY SEWER LINE
- EX.SSZB = EXISTING SANITARY SEWER LINE
- SDZB = PROPOSED STORM DRAIN LINE
- EX.SDZB = EXISTING STORM DRAIN LINE
- LDZB = PROPOSED LAND DRAIN LINE
- EX.LDZB = EXISTING LAND DRAIN LINE
- RRZB = PROPOSED IRRIGATION LINE
- EX.IRRZB = EXISTING IRRIGATION LINE
- X X X = EXISTING FENCE LINE
- O O O = PROPOSED FENCE LINE
- - - = DRAINAGE SWALE
- OHP = OVERHEAD POWER LINE
- FH = PROPOSED FIRE HYDRANT
- EH = EXISTING FIRE HYDRANT
- MH = PROPOSED MANHOLE
- EMH = EXISTING MANHOLE
- SSC = PROPOSED SEWER CLEAN-OUT
- SGV = PROPOSED GATE VALVE
- EGV = EXISTING GATE VALVE
- PB = PLUG & BLOCK
- AV = AIR VAC ASSEMBLY
- DSM = DUAL SECONDARY METER

- ROW = RIGHT-OF-WAY
- SD = STORM DRAIN
- SL = STREET LIGHT
- SS = SANITARY SEWER
- TBC = TOP BACK OF CURB
- TOA = TOP OF ASPHALT
- TCC = 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
- EX ASPHALT = EXISTING ASPHALT PAVEMENT
- PRO ASPHALT = PROPOSED ASPHALT PAVEMENT
- PRO CONCR = PROPOSED CONCRETE
- PRO GRAVEL = PROPOSED GRAVEL
- 4800 = EXISTING CONTOUR GRADE
- 4800 = PROPOSED CONTOUR GRADE
- 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 BASEMENT
- RCP = REINFORCED CONCRETE PIPE
- RIM = RIM OF MANHOLE

**Reeve & Associates, Inc.**  
5160 SOUTH 1500 WEST, RIVERDALE, UTAH 84405  
TEL: (801) 671-1100 www.reeveco.com

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TRAFFIC ENGINEERS • STRUCTURAL ENGINEERS • GEOTECHNICAL ENGINEERS

**IPA**

REVISIONS: [Table with columns for REVISIONS and DATE]

**Smart Fields**  
WEBER COUNTY, UTAH

**Notes/Legend/Street Cross-Section**

60' ROW STREETS:  
B STREET  
C STREET  
4250 WEST STREET  
4350 WEST STREET  
1700 SOUTH STREET

**Project Info.**  
Engineer: JEREMY A. DRAPER, P.E.  
Drafter: N. FICKLIN  
Begin Date: NOVEMBER 2023  
Name: SMART FIELDS SUBDIVISION  
Number: 6298-22

REGISTERED PROFESSIONAL ENGINEER  
5338480  
JEREMY A. DRAPER  
01/24/2024  
STATE OF UTAH

23 Total Sheets





























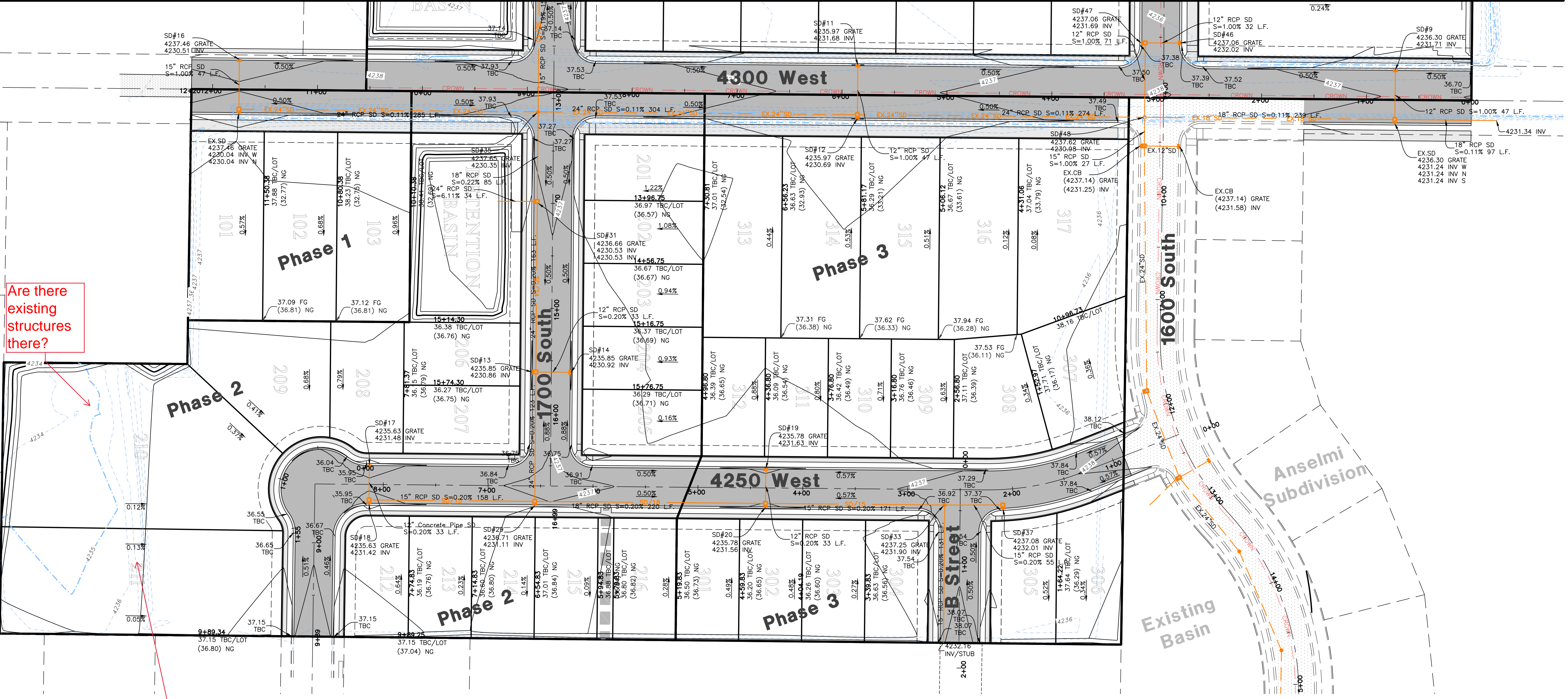






See Sheet 17

See Sheet 17



Are there existing structures there?

What is this? is this a ditch that needs to be filled?

**Reeve & Associates, Inc.**  
 5160 SOUTH 1500 WEST, RIVERDALE, UTAH 84405  
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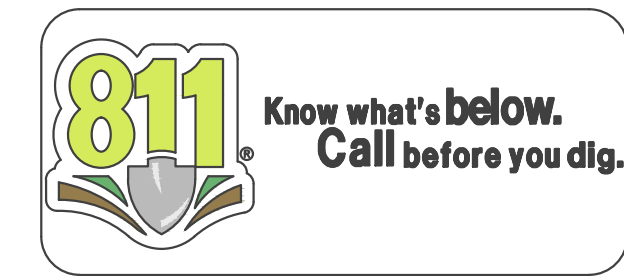
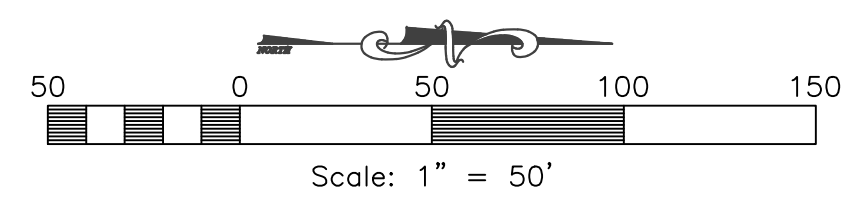
REVISIONS	DESCRIPTION

**Smart Fields**  
 WEBER COUNTY, UTAH

**Grading Plan**



**Project Info.**  
 Engineer: JEREMY A. DRAPER, P.E.  
 Drafter: N. FICKLIN  
 Begin Date: NOVEMBER 2023  
 Name: SMART FIELDS SUBDIVISION  
 Number: 6298-22



**Notice:**  
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What is materials of basins?

### Storm Runoff Calculations

Smart Fields West  
6298-24 1/23/2024

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the West Weber City 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 and limited to a release rate of 0.1 cfs/acre.

The calculations are as follows:

**Drainage Area:**  
Total Area = 16.91 acre or 736,540 ft<sup>2</sup>  
Runoff Coefficients:  
18% Paved Area 133,104 C = 0.9  
12% Roof 90,000 C = 0.9  
70% Landscaped Area 513,436 C = 0.2  
Weighted Runoff Coefficient C = 0.41

**LID Retention:**  
80<sup>th</sup> Percentile Rainfall Event 0.6 in  
Is the site Feasible for LID? No  
Site Imperviousness 0.30  
NRCS Soil Group C/D  
Rv Equation 0.83\*1.122  
R<sub>v</sub> 0.22  
V<sub>pond</sub> 8,003 c.f.

**Rainfall Intensities:**  
10-yr intensity for a 30 minute TOC - Pipe Capacity 1.39 in/hr

**Peak Run-off:**  
Runoff Coefficient C = 0.41  
Rainfall Intensity I = 1.39 IN./HR.  
Acreage A = 16.91 ACRES  
Q = 9.66 cfs

**Volume of Run-off for 100-year Storm Event:**  
C = 0.41  
I = See Below in/hr  
A = 736540.00 ft<sup>2</sup>  
Q(out) = 1.69 ft<sup>3</sup>/s (0.1 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	6.59	46.29	13898	507	13391
10	600	5.00	35.13	21075	1015	20060
15	900	4.14	29.08	26175	1522	24653
30	1800	2.79	19.60	35280	3044	32236
60	3600	1.72	12.08	43489	6087	37402
120	7200	0.94	6.63	47748	12174	35573
180	10800	0.64	4.51	48709	18261	30447
360	21600	0.36	2.51	54323	36523	17800
720	43200	0.22	1.55	66766	73045	-6280
1440	86400	0.12	0.87	75263	146091	-70827

**Orifice Sizing:**  
Given: Q = 1.69 cfs  
Z<sub>0</sub> = 64.4 ft<sup>3</sup>  
H = 3.78 ft  
Cd = 0.62  
R = SQRT(Q/pi\*(0.7\*(64.4\*H)<sup>0.5</sup>))  
R = 0.24 feet  
D = 2.83 inches  
A = 5.66 inches  
A = 25.18 inches \*2 0.1749 ft \*2

**SUMMARY:**  
The required 100-yr storage volume is 37,412 cubic feet  
The required LID Retention volume is Not Feasible cubic feet  
Orifice size is 5.7 inches

### Storm Runoff Calculations

Smart Fields East  
6298-24 1/23/2024

The following runoff calculations are based on the Rainfall - Intensity - Duration Frequency Curve for the West Weber City 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 and limited to a release rate of 0.1 cfs/acre.

The calculations are as follows:

**Drainage Area:**  
Total Area = 10.91 acre or 475,230 ft<sup>2</sup>  
Runoff Coefficients:  
17% Paved Area 81,744 C = 0.9  
15% Roof 72,000 C = 0.9  
68% Landscaped Area 321,486 C = 0.2  
Weighted Runoff Coefficient C = 0.43

**LID Retention:**  
80<sup>th</sup> Percentile Rainfall Event 0.6 in  
Is the site Feasible for LID? No  
Site Imperviousness 0.32  
NRCS Soil Group C/D  
Rv Equation 0.83\*1.122  
R<sub>v</sub> 0.23  
V<sub>pond</sub> 5,560 c.f.

**Rainfall Intensities:**  
10-yr intensity for a 30 minute TOC - Pipe Capacity 1.39 in/hr

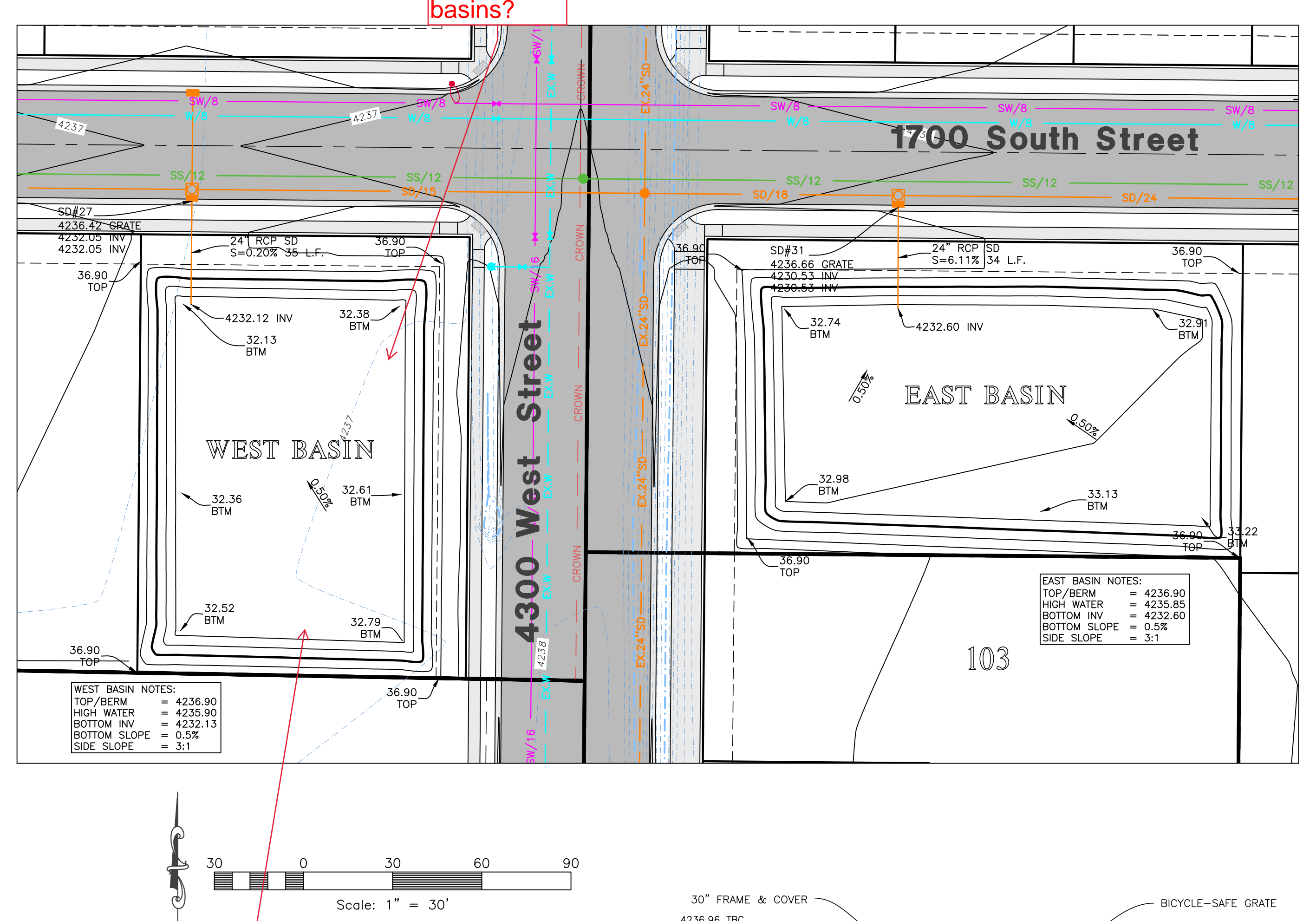
**Peak Run-off:**  
Runoff Coefficient C = 0.43  
Rainfall Intensity I = 1.39 IN./HR.  
Acreage A = 10.91 ACRES  
Q = 6.47 cfs

**Volume of Run-off for 100-year Storm Event:**  
C = 0.43  
I = See Below in/hr  
A = 475230.00 ft<sup>2</sup>  
Q(out) = 1.09 ft<sup>3</sup>/s (0.1 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	6.59	30.92	9275	327	8948
10	600	5.00	23.46	14074	655	13419
15	900	4.14	19.42	17480	982	16498
30	1800	2.79	13.09	23560	1964	21596
60	3600	1.72	8.07	29049	3928	25121
120	7200	0.94	4.43	31886	7855	24031
180	10800	0.64	3.01	32528	11783	20745
360	21600	0.36	1.68	36277	23565	12712
720	43200	0.22	1.03	44587	47130	-2544
1440	86400	0.12	0.58	50261	94260	-43999

**Orifice Sizing:**  
Given: Q = 1.09 cfs  
Z<sub>0</sub> = 64.4 ft<sup>3</sup>  
H = 3.25 ft  
Cd = 0.62  
R = SQRT(Q/pi\*(0.7\*(64.4\*H)<sup>0.5</sup>))  
R = 0.20 feet  
D = 2.36 inches  
A = 4.72 inches  
A = 17.52 inches \*2 0.1217 ft \*2

**SUMMARY:**  
The required 100-yr storage volume is 25,121 cubic feet  
The required LID Retention volume is Not Feasible cubic feet  
Orifice size is 4.7 inches

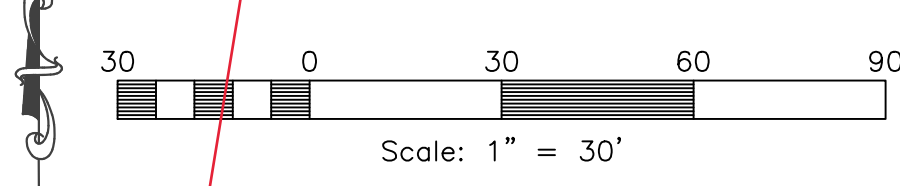


#### STAGE STORAGE TABLE - WEST BASIN

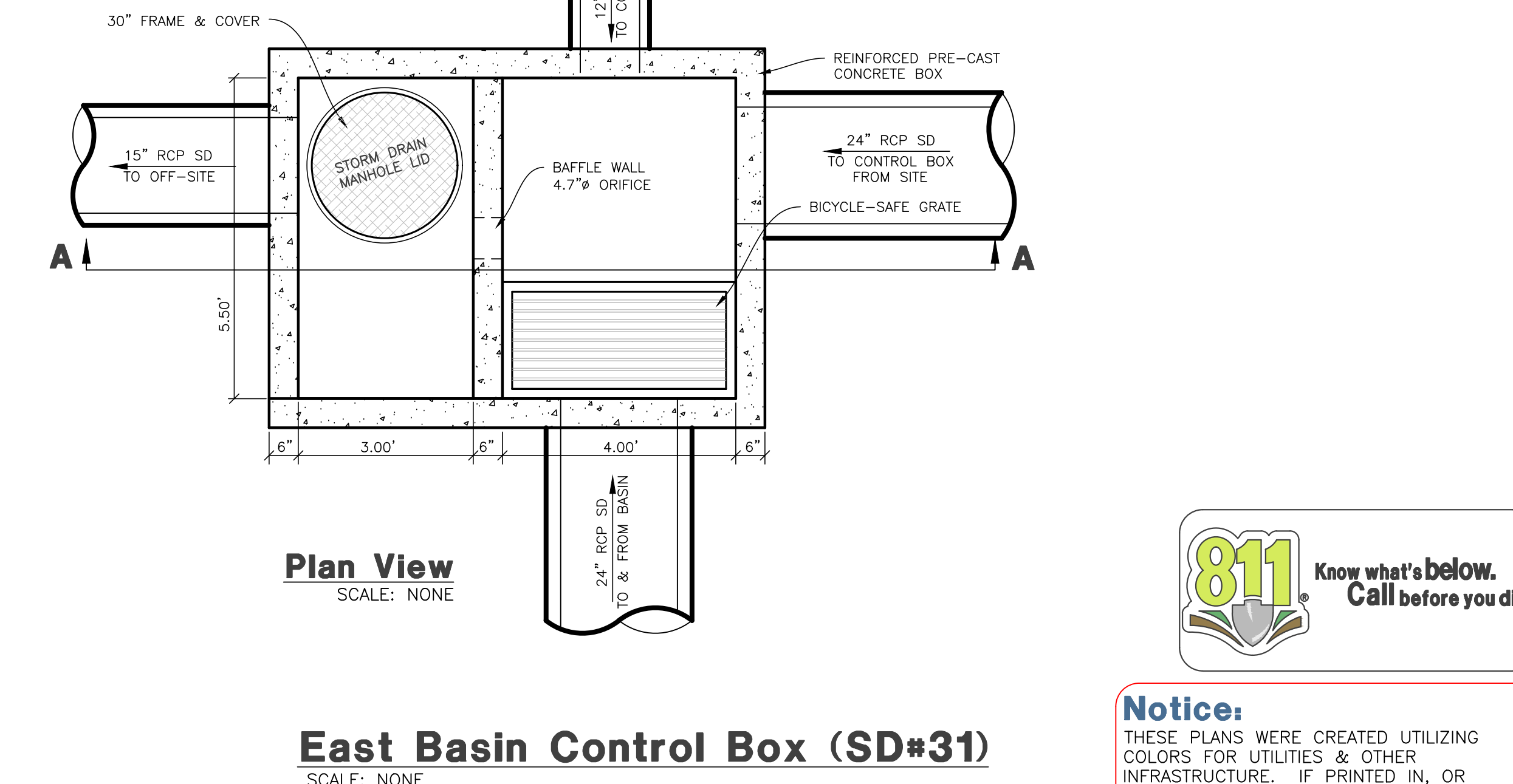
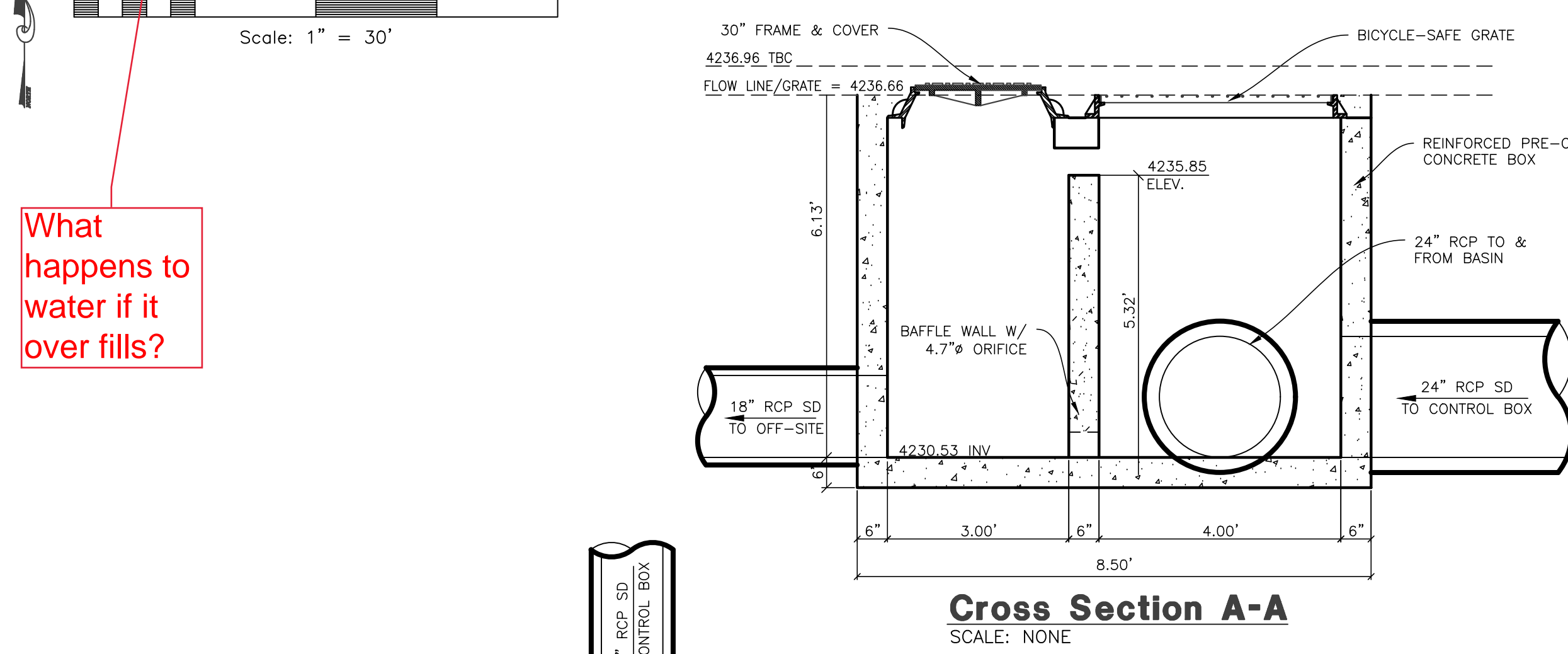
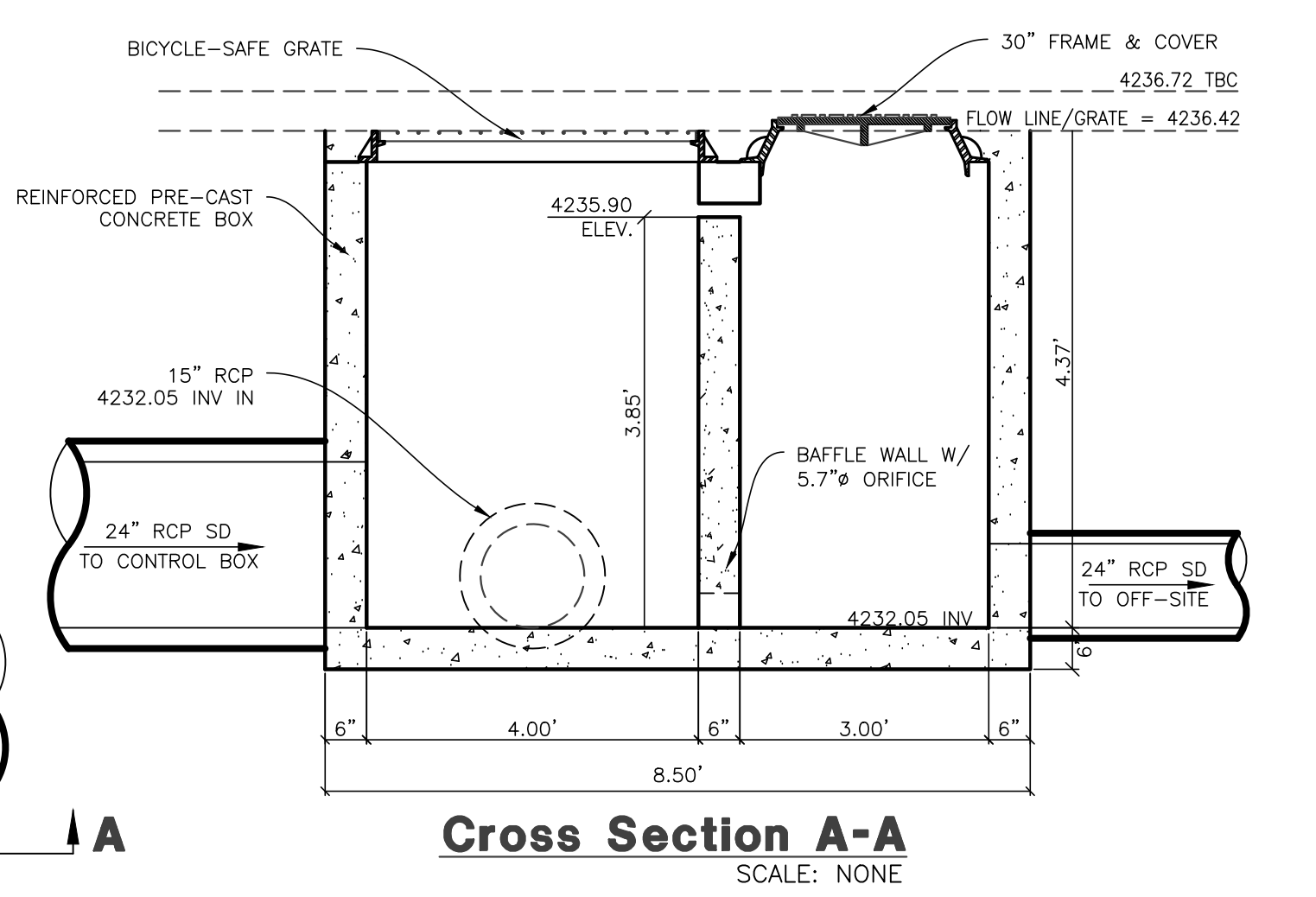
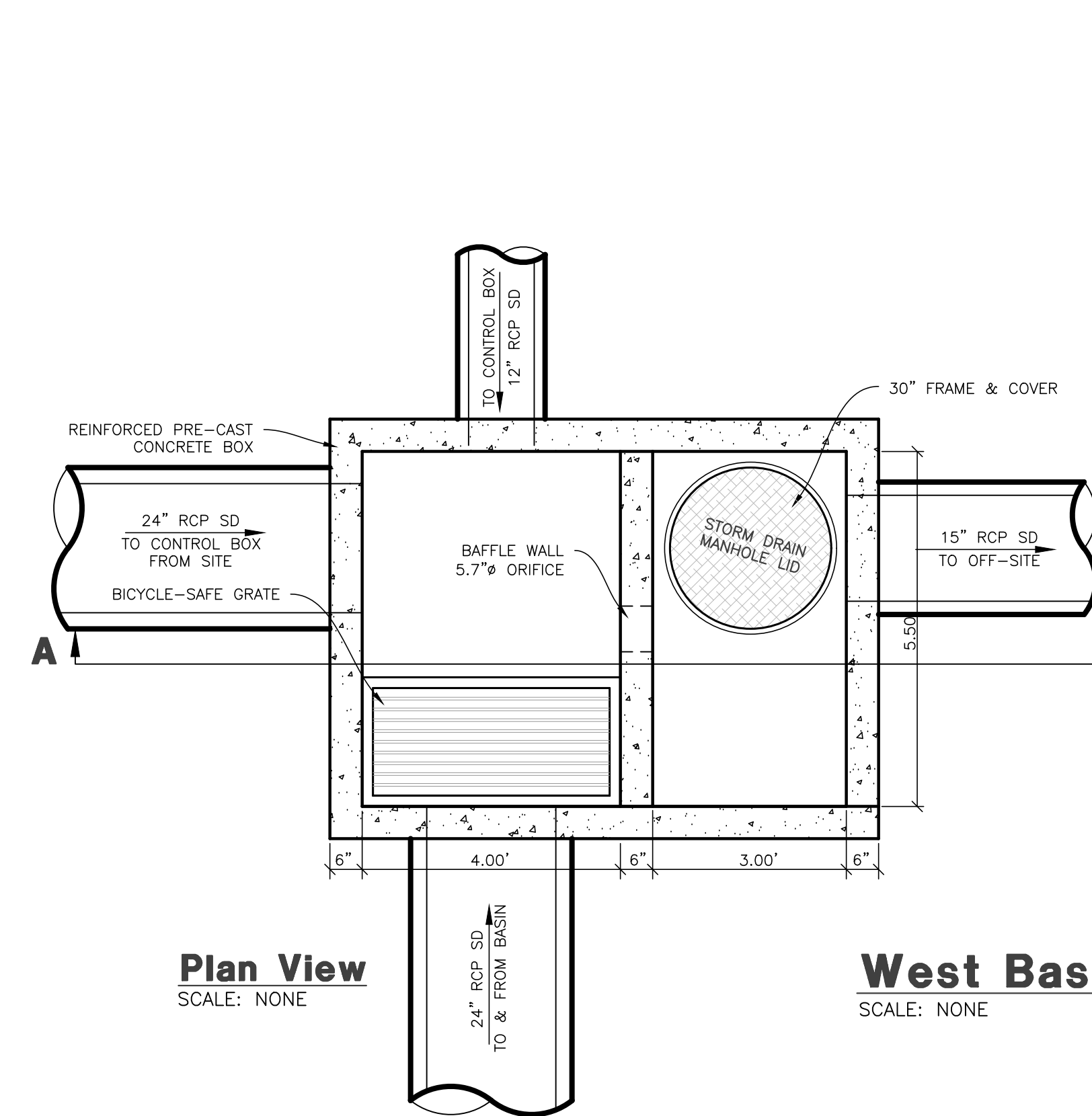
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	CONIC TOTAL VOL. (cu. ft.)
4,232.12	0	N/A	N/A	0	N/A	0
4,233.00	8,836	0.88	3883	3883	2596	2596
4,234.00	10,085	1.00	9460	13344	9453	12050
4,235.00	11,420	1.00	10752	24097	10745	22796
4,235.90	12,693	0.90	10851	34948	10846	33642
4,236.00	12,838	0.10	1276	36225	1276	34918
4,236.90	14,179	0.90	12158	48383	12153	47071

#### STAGE STORAGE TABLE - EAST BASIN

ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	CONIC TOTAL VOL. (cu. ft.)
4,232.60	0	N/A	N/A	0	N/A	0
4,233.00	6,994	0.40	1398	1398	932	932
4,234.00	10,934	1.00	8964	10363	8891	9824
4,235.00	12,426	1.00	11680	22044	11672	21497
4,235.85	13,764	0.85	11131	33175	11126	32623
4,236.00	14,006	0.15	2082	35258	2082	34706
4,236.85	15,415	0.85	12504	47762	12499	47205



What happens to water if it over fills?



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**Reeve & Associates, Inc.**  
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TEL: (801) 621-3100 www.reeve.com

**RA**

REGISTERED PROFESSIONAL ENGINEER  
3388480  
JEREMY A. DRAPER  
01/24/2024  
STATE OF UTAH

**Smart Fields**  
WEBER COUNTY, UTAH

**Basin Plan**

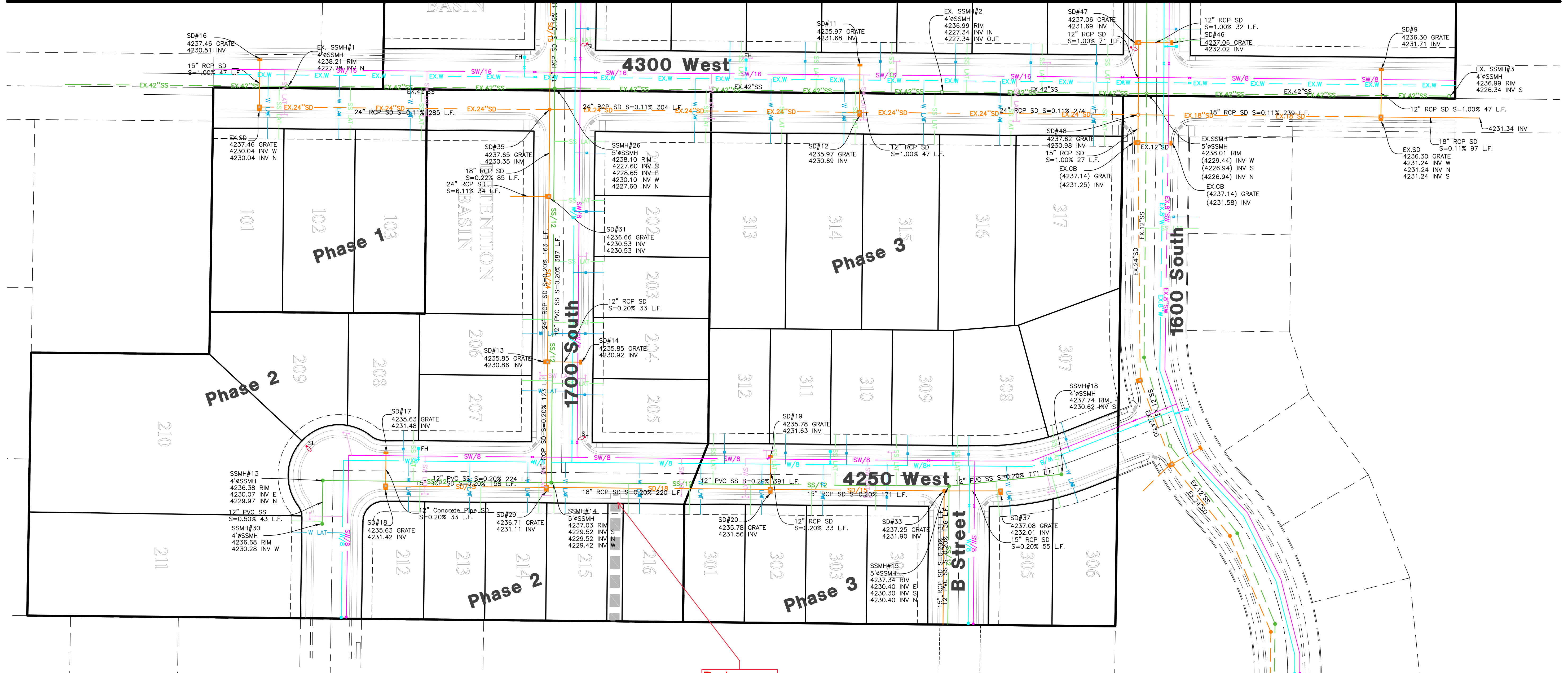
**Project Info.**  
Engineer: JEREMY A. DRAPER, P.E.  
Drafter: N. FICKLIN  
Begin Date: NOVEMBER 2023  
Name: SMART FIELDS SUBDIVISION  
Number: 6298-22

**19**  
23 Total Sheets

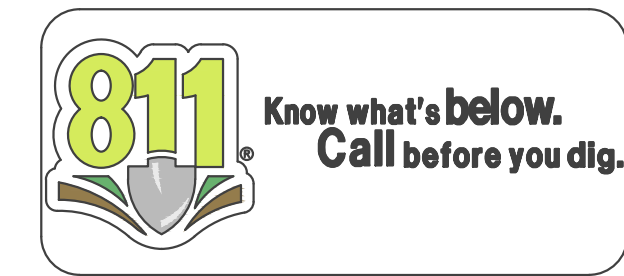
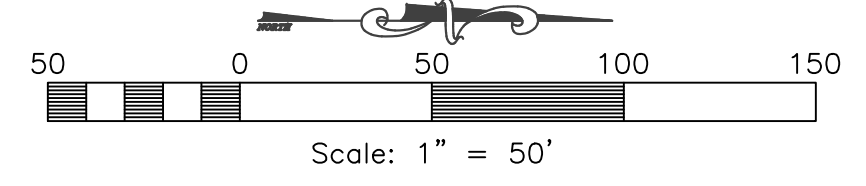


See Sheet 20

See Sheet 20



Ped raps on both sides of roads?



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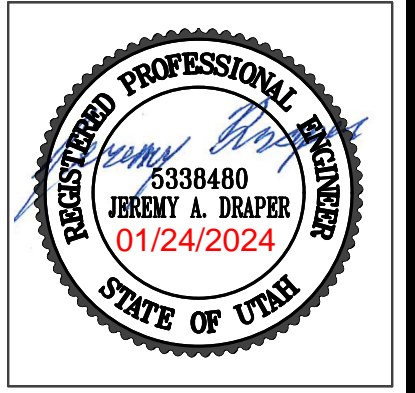
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REVISIONS	DESCRIPTION

**Smart Fields**  
 WEBER COUNTY, UTAH

**Utility Plan**



**Project Info.**

Engineer:	JEREMY A. DRAPER, P.E.
Drafter:	N. FICKLIN
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