

**BENCHMARK**  
SALT LAKE COUNTY WITNESS CORNER  
LOCATED S 89°15'05" E 121.06' FROM WEST  
QUARTER CORNER, OF SECTION 31, T2S, R1E,  
SALT LAKE BASE AND MERIDIAN.  
FOUND BRASS CAP.  
ELEVATION = 4403.82



**DRAINAGE NARRATIVE**

THE PURPOSE OF THIS PROJECT IS TO BUILD MULTIFAMILY SUBDIVISION. THE DRAINAGE FOR THIS DEVELOPMENT WILL FOLLOW CITY STANDARDS, INCLUDING:

- DETENTION OF THE 100-YEAR, 3 HOUR STORM WITH A 0.20 CFS/ACRE DISCHARGE.
- STORM WATER FLOW FROM THE 10-YEAR, 3 HOUR STORM NEEDS TO DISCHARGE TO CITY PIPES.
- 100-YEAR DISCHARGE TO CITY RIGHT OF WAY.

THE DETENTION REQUIREMENTS AND PIPE SIZING FOR THIS SITE WERE CALCULATED USING THE RATIONAL METHOD. A WEIGHTED RUNOFF COEFFICIENT WAS USED FOR EACH CATCHMENT BASED ON THE AMOUNT OF HARDSCAPE AND LANDSCAPE AREAS. RAINFALL INTENSITIES WERE TAKEN FROM THE SANDY CITY INTENSITY CHART.

THE SITE IS BROKEN UP INTO 2 CATCHMENT AREAS. THE NORTH CATCHMENT AREA REQUIRES A TOTAL DETENTION VOLUME OF 4,030 CF. THIS VOLUME WILL BE STORED IN TWO PONDS DESIGNATED AS POND 1 AND POND 3. POND 1 HAS A CAPACITY OF 1,986 CF, AND POND 3 HAS A TOTAL CAPACITY OF 2,337 CF. THE OUTFLOW WILL BE CONTROLLED BY AN ORIFICE PLATE (ORIFICE DIAMETER 2.41 INCHES). AN ADS BARRACUDA WATER TREATMENT SYSTEM WILL THEN TREAT THE WATER BEFORE DISCHARGING TO THE CITY STORM SYSTEM.

THE SOUTH CATCHMENT AREA REQUIRES A TOTAL DETENTION VOLUME OF 7,975 CF AND WILL BE STORED IN TWO PONDS DESIGNATED AS POND 2 AND POND 4. POND 2 HAS A CAPACITY OF 1,828 CF AND POND 4 HAS 6,241 CF OF CAPACITY. THE OUTFLOW WILL BE CONTROLLED BY AN ORIFICE PLATE (ORIFICE DIAMETER 4.01 INCHES). AN ADS BARRACUDA WATER TREATMENT SYSTEM WILL THEN TREAT THE WATER BEFORE DISCHARGING TO THE CITY STORM SYSTEM.

**LID ANALYSIS**

A LOW-IMPACT DEVELOPMENT ANALYSIS WAS COMPLETE FOR THE SITE. AS PART OF THIS ANALYSIS, POND 1 (POND LOCATED ON THE NORTHEAST CORNER OF SITE) SHOULD BE CONSTRUCTED TO ENSURE PERCOLATION OF WATER ON SITE. THE OUTFLOW FOR THIS POND IS PLACED 9.25' ABOVE THE BOTTOM OF POND, HAVING THE OUTFLOW PLACED AT THIS LEVEL AND A MINIMUM OF 9" OF GRAVEL IN BOTTOM OF POND, THIS WILL ALLOW THE WATER TO PERCOLATE INTO THE SOIL ON SITE.

**GENERAL NOTES**

1. ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
2. ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.
3. ALL WORK SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER POSSIBLY INCLUDING, BUT NOT LIMITED TO, REMOVAL OF UNCONSOLIDATED FILL, ORGANICS, AND DEBRIS, PLACEMENT OF SUBSURFACE DRAIN LINES AND GEOTEXTILE, AND OVEREXCAVATION OF UNSUITABLE BEARING MATERIALS AND PLACEMENT OF ACCEPTABLE FILL MATERIAL.
4. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING SOIL CONDITIONS.
5. ELEVATIONS HAVE BEEN TRUNCATED FOR CLARITY. XX.XX REPRESENTS AN ELEVATION OF 44XX.XX ON THESE PLANS.
6. LANDSCAPED AREAS REQUIRE SUBGRADE TO BE MAINTAINED AT A SPECIFIC ELEVATION BELOW FINISHED GRADE AND REQUIRE SUBGRADE TO BE PROPERLY PREPARED AND SCARIFIED. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
7. SLOPE ALL LANDSCAPED AREAS AWAY FROM BUILDING FOUNDATIONS TOWARD CURB AND GUTTER OR STORM DRAIN INLETS.
8. ALL STORM DRAIN INFRASTRUCTURE TO BE INSTALLED PER GOVERNING AGENCY OR APWA STANDARD PLANS AND SPECIFICATIONS.
9. ENSURE MINIMUM COVER OVER ALL STORM DRAIN PIPES PER MANUFACTURER'S RECOMMENDATIONS. NOTIFY ENGINEER IF MINIMUM COVER CANNOT BE ATTAINED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONSTRUCTION DAMAGE.
10. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT ARE TO REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE.
11. THE CONTRACTOR SHALL ADJUST TO GRADE ALL EXISTING UTILITIES AS NEEDED PER LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
12. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE, ASPHALT, OR STORM DRAIN STRUCTURES OR PIPES.
13. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.

**STORM WATER NOTES**

1. NOTIFY SANDY CITY PUBLIC UTILITIES INSPECTOR (801-568-7280), AT LEAST ONE BUSINESS DAY (24 HOURS) PRIOR TO BEGINNING CONSTRUCTION.
2. A PRE-CONSTRUCTION MEETING IS REQUIRED ONCE FINAL APPROVAL HAS BEEN GRANTED. THE PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED THROUGH SANDY CITY PUBLIC WORKS DEPARTMENT.
3. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REVISION OF THE SANDY CITY STANDARD SPECIFICATION AND DETAILS FOR MUNICIPAL CONSTRUCTION AND/OR OTHER REQUIREMENTS AS SET FORTH IN THE PUBLIC UTILITIES FINAL REVIEW AND APPROVAL LETTER ESTABLISHED FOR THE DEVELOPMENT. SPECIFICATIONS AND DETAILS CAN BE OBTAINED ON THE SANDY CITY WEBSITE.
4. SUBMITTALS ARE REQUIRED TO BE APPROVED BY THE CONSULTING ENGINEER FOR ALL BEDDING, BACKFILL, PIPE, AND STRUCTURES (INLET BOXES, COMBO BOXES, AND JUNCTION BOXES). SUBMITTALS MUST HAVE SUFFICIENT INFORMATION TO SHOW THAT THE PROPOSED ITEMS CONFORM TO SANDY CITY STANDARDS AND SPECIFICATIONS.
5. CONSTRUCTION WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE UTAH POLLUTION DISCHARGE ELIMINATION SYSTEM (UPDES) REGULATIONS.
6. ALL MATERIALS AND WORK DONE IN UDOT RIGHT-OF-WAY SHALL CONFORM TO UDOT STANDARDS AND SPECIFICATIONS.
7. NON-SHRINK GROUT SHALL BE USED WHEREVER GROUT IS REQUIRED FOR THE STORM DRAIN FACILITIES.
8. CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX OR MANHOLE AND GROUT AT CONNECTION OF PIPE TO BOX TO A SMOOTH FINISH. ADDITIONALLY, ALL JAGGED OR SHARP EDGES AT PIPE CONNECTIONS ARE TO BE REMOVED AND GROUTED SMOOTH.
9. GROUT BETWEEN GRADE RINGS. FOR EACH INLET BOX THAT IS LOCATED NEXT TO A CURB, THE CURB AND GUTTER CONTRACTOR IS RESPONSIBLE TO REMOVE ALL PROTRUDING, JAGGED OR SHARP CONCRETE EDGES AND TO GROUT BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX. GROUT TO CREATE A SMOOTH, BEVELED TRANSITION AT ALL EDGES IN CLEAN OUT AND INLET BOXES. GROUT ALL EDGES OF THE RESTRICTIVE ORIFICE PLATE.
10. REMOVE SNAP TIES, NAILS, REBAR AND OTHER PROTRUSIONS FROM THE BOX OR PIPE INSIDE SURFACE, AS WELL AS ALL FORM WORK, PLASTIC AND CARDBOARD.
11. SILT AND DEBRIS ARE TO BE CLEANED OUT OF ALL INLET BOXES, COMBO BOXES, JUNCTION BOXES, AND PIPE. THE BOXES AND PIPES ARE TO BE MAINTAINED IN A CLEAN CONDITION UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.
12. CLEAN OFF ALL MANHOLE LIDS AND INLET GRATES OF ASPHALT, CONCRETE, TAR OR OTHER ADHESIVES TO ALLOW ACCESS.
13. WHERE A SUMP IS REQUIRED, THE SANDY CITY PUBLIC UTILITIES INSPECTOR SHALL BE CONTACTED PRIOR TO CONSTRUCTION TO PROVIDE AN OPPORTUNITY TO CHECK THE VOLUME OF GRAVEL AND GRADATION.
14. SIGNS MUST BE POSTED NEAR EACH INLET BOX LOCATED IN A DRINKING WATER RECHARGE ZONE, WITH THE FOLLOWING WORDS "WARNING THIS IS A DRINKING WATER AQUIFER RECHARGE AREA. DISPOSE OF ANY WASTE MATERIALS IN THE STORM WATER IS STRICTLY PROHIBITED."
15. ALL INLET, COMBO AND JUNCTION BOXES SHALL BE PLACED ON 12-INCH (MIN.) COMPACTED STABILIZED MATERIAL.
16. A VIDEO OF ALL PIPES MUST BE COMPLETED BEFORE THE 90% OR 90% BOND RELEASE AND AGAIN BEFORE FINAL BOND RELEASE.
17. A REPRESENTATIVE OF THE MANUFACTURER OF SUPPLIER SHALL BE ON SITE DURING INSTALLATION OF OIL/WATER SEPARATORS AND UNDERGROUND DETENTION/RETENTION SYSTEMS. THE MANUFACTURER OR SUPPLIER SHALL PROVIDE A LETTER STATING THAT THE SYSTEM WAS INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF IT IS UNKNOWN WHETHER A REPRESENTATIVE IS REQUIRED TO BE PRESENT DURING INSTALLATION, CONTACT THE SANDY CITY PUBLIC UTILITIES INSPECTOR.
18. A LETTER FROM THE CONSULTING ENGINEER IS REQUIRED TO BE SUBMITTED TO SANDY CITY PUBLIC UTILITIES DEPARTMENT, PRIOR TO 90% BOND RELEASE, VERIFYING THAT THE VOLUME FOR RETENTION/DETENTION PONDS WAS INSTALLED PER THE APPROVED PLANS.

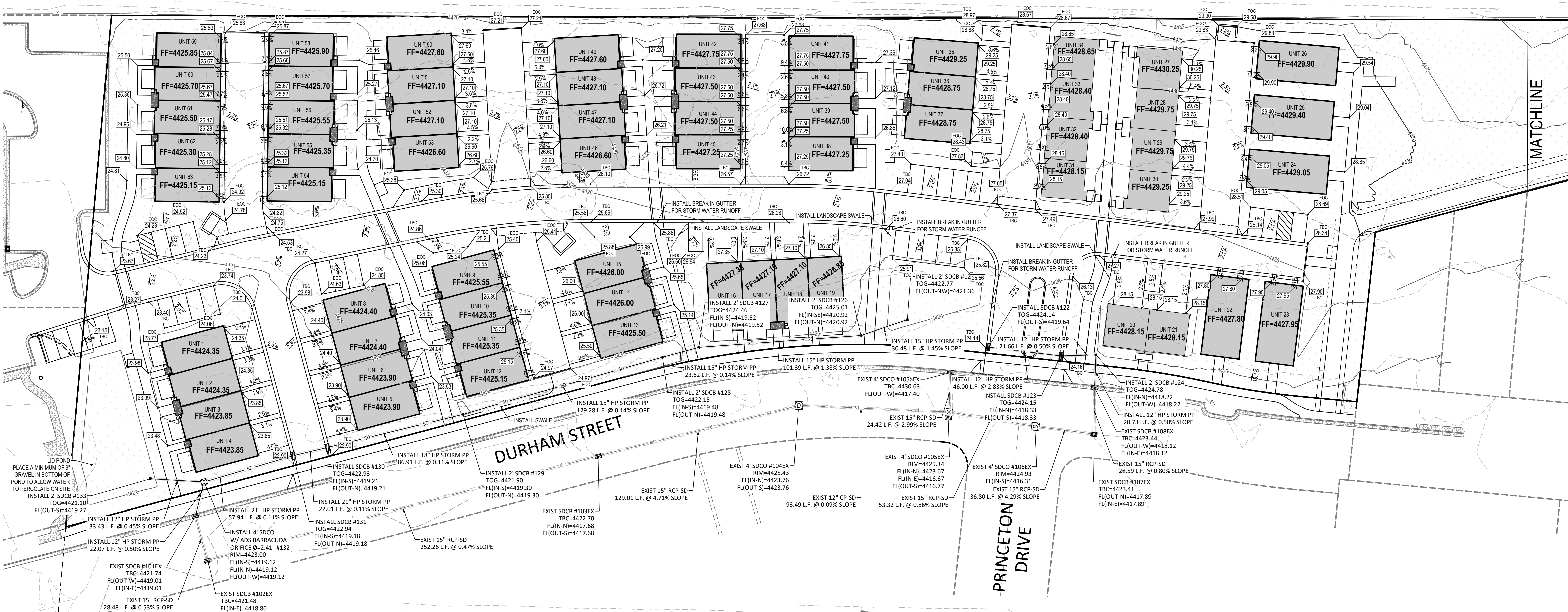


**FINISH GRADE ENGINEERING**

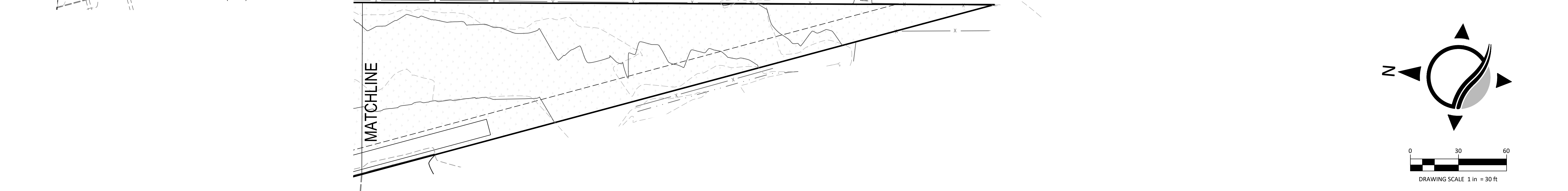
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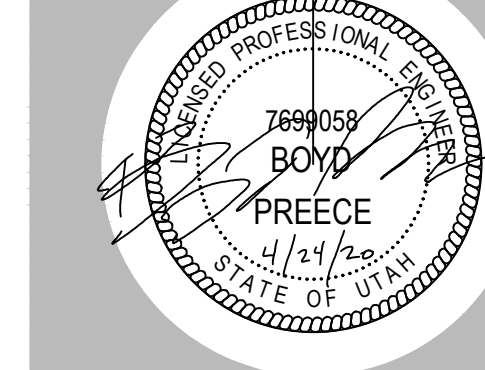
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PROJECT MANAGER: B. Preece



Submission 04/24/2020  
**GRADING AND DRAINAGE PLAN**

**C200**