

Project: Matt Rasmussen - Uintah Open Channel flow Calculations		Project No.: 14-041	
By: J. Jensen		Reviewed By:	
Date: 10/15/2014		Sheet: 1	

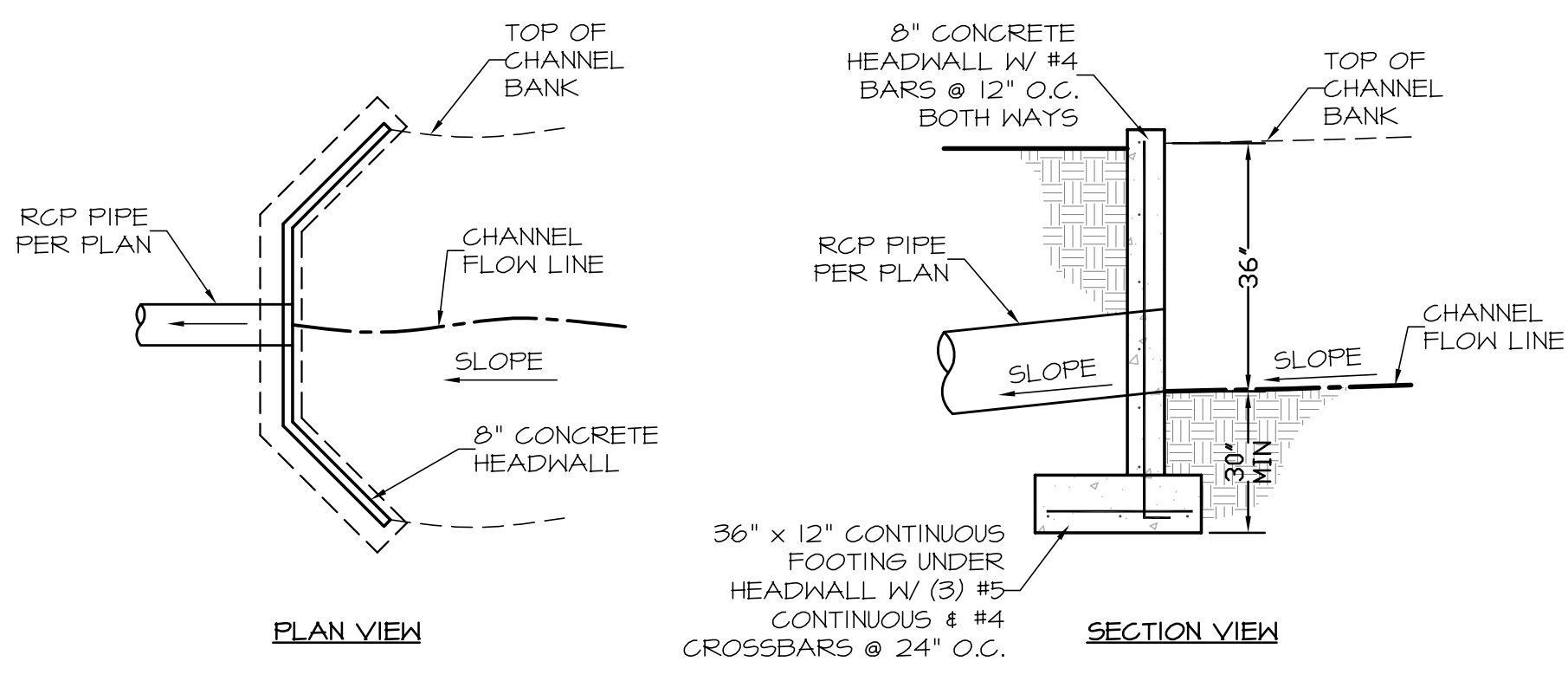
Design Data is based upon report dated September 4th, 2014 by HydroPlot. This report states that the 500 year and 100 year flood volumes are Approx. 21 cfs, and 12 cfs

Manning Coefficient = 1.486

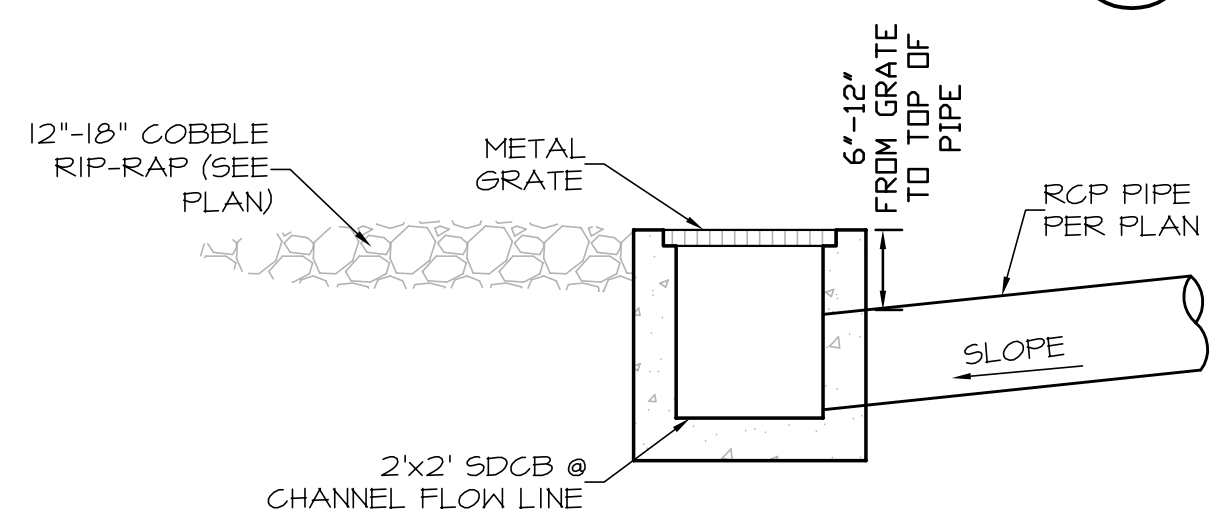
PIPE INFORMATION					
Description	D (in)	SLOPE	A (ft)	P (ft)	Q allow (cfs)
Required pipe size for 500 year storm	18	0.2	1.767	4.712	46.98
Required pipe size for 100 year storm	15	0.2	1.227	3.927	28.89

Channel Information					
Description	Top width	SLOPE	A (ft)	P (ft)	Q allow (cfs)
20' min wide x 2' min deep	20	0.02	15	21	50.38
Channel width 1' freeboard					

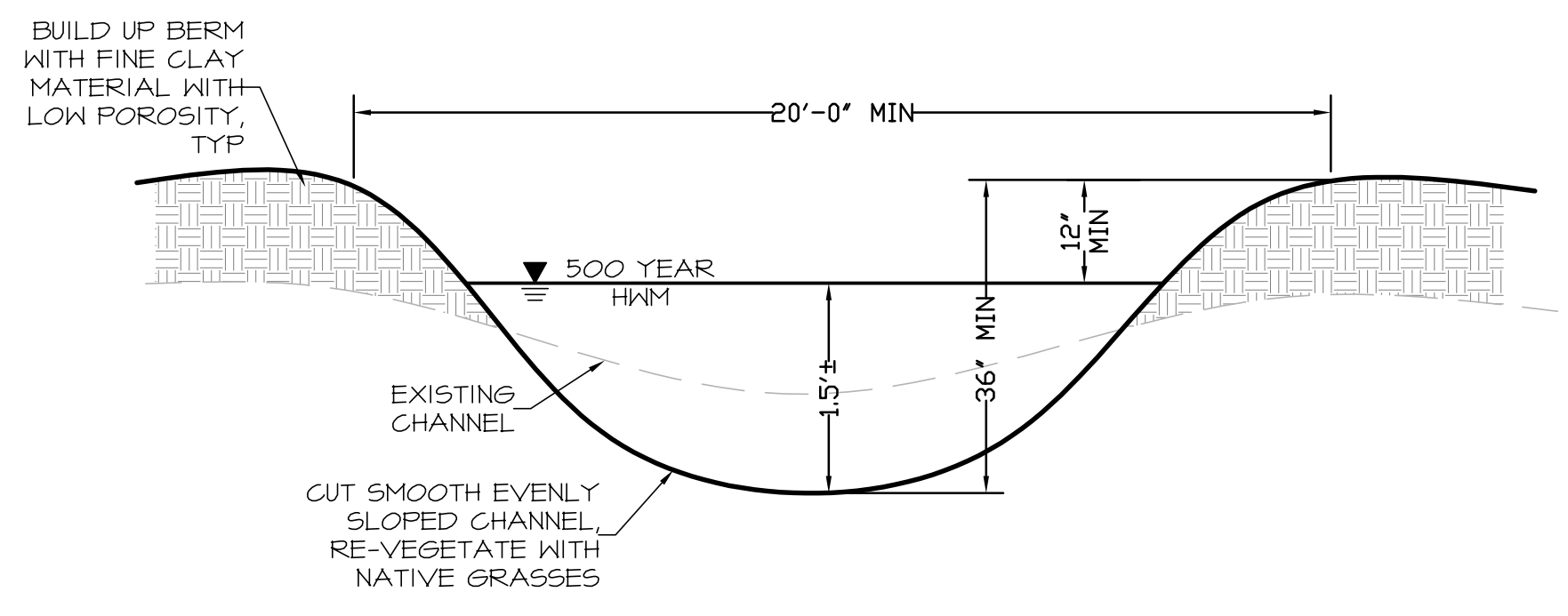
Conclusion: Provide a 3' deep x 20 wide, or wider channel flow is modeled at 2' deep, to allow 1' freeboard



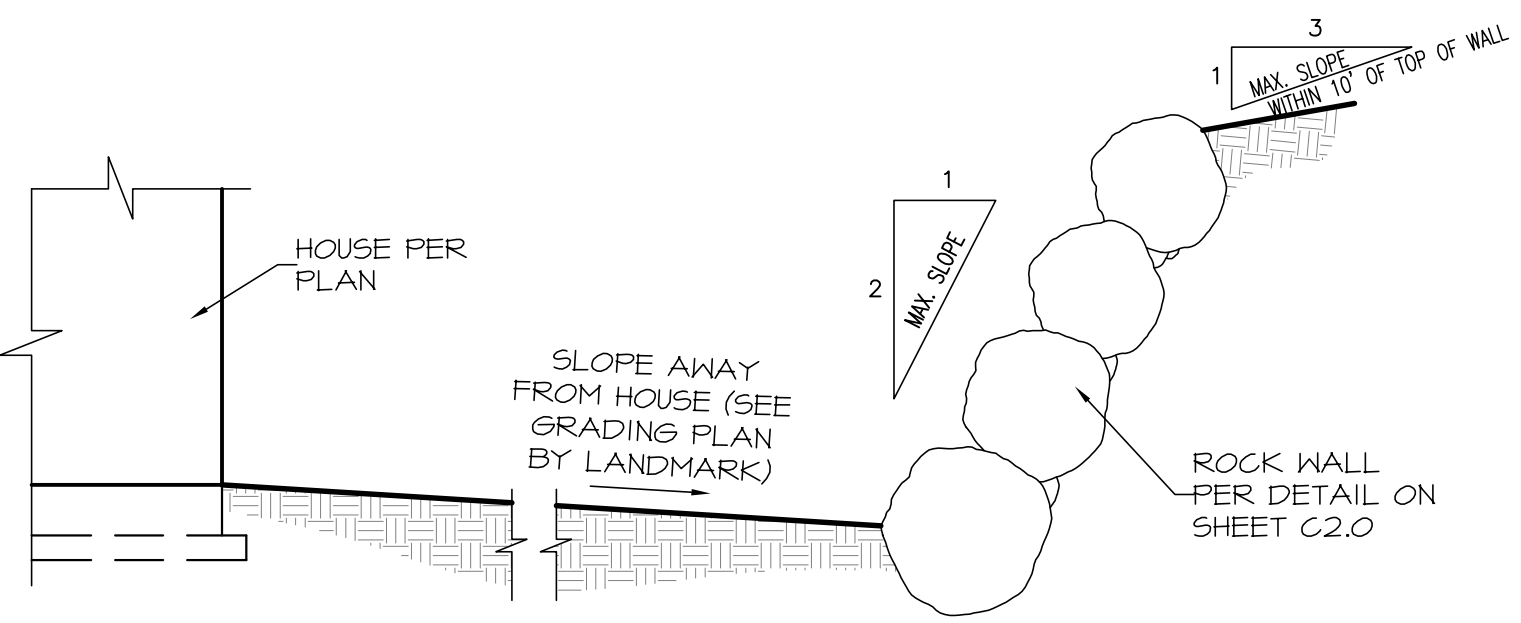
INLET STRUCTURE DETAIL 1
NOT TO SCALE C1.0



OUTLET STRUCTURE DETAIL 2
NOT TO SCALE C1.0



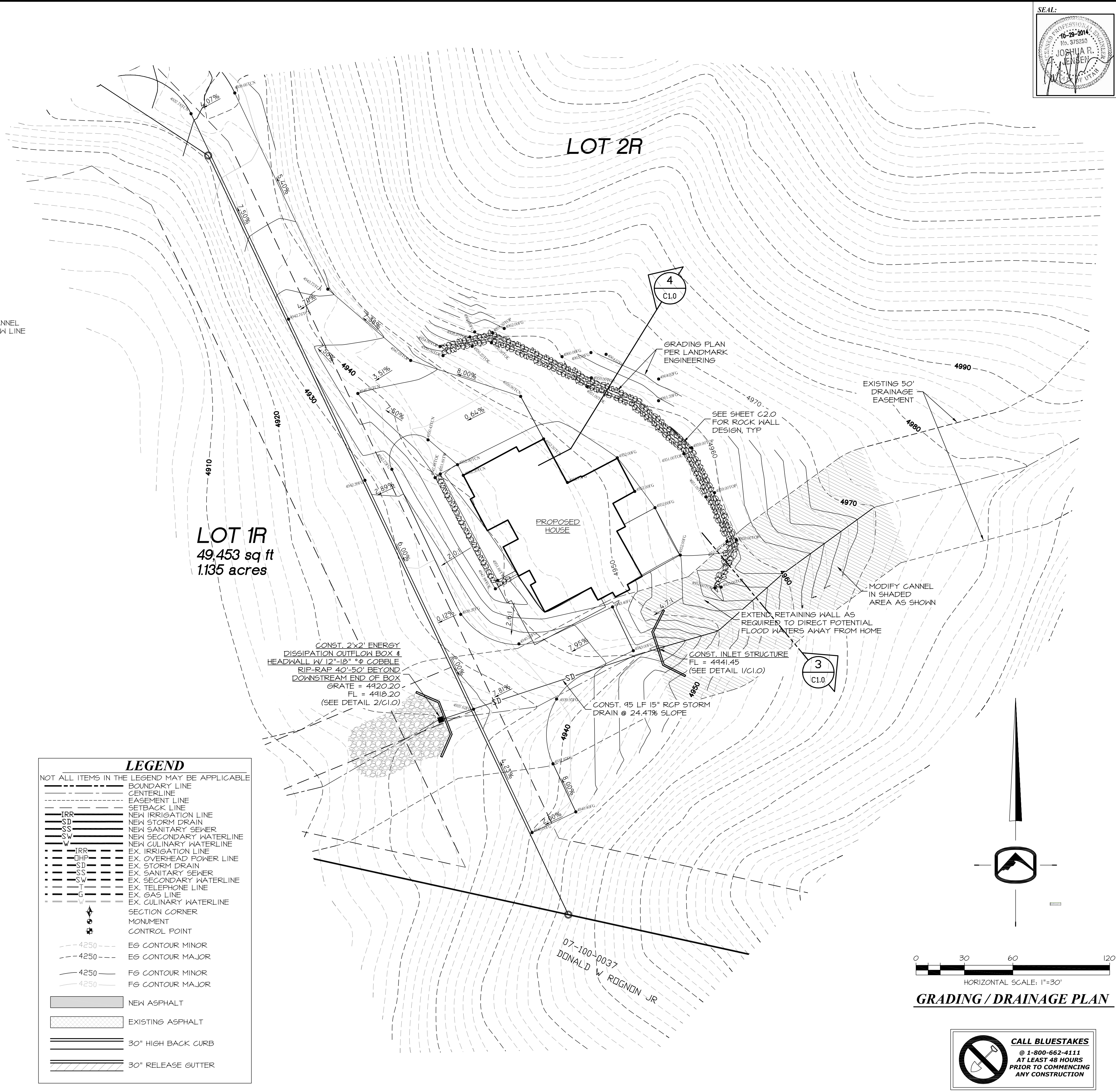
MODIFIED CHANNEL CROSS SECTION 3
NOT TO SCALE C1.0



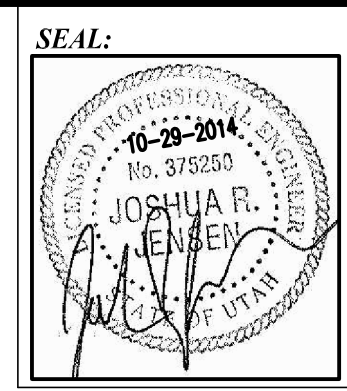
CROSS SECTION 4
NOT TO SCALE C1.0

LEGEND
NOT ALL ITEMS IN THE LEGEND MAY BE APPLICABLE

---	BOUNDARY LINE
---	CENTERLINE
---	EASEMENT LINE
---	SETBACK LINE
---	NEW IRRIGATION LINE
---	NEW STORM DRAIN
---	NEW SANITARY SEWER
---	NEW SECONDARY WATERLINE
---	NEW CULINARY WATERLINE
---	EX. IRRIGATION LINE
---	EX. OVERHEAD POWER LINE
---	EX. STORM DRAIN
---	EX. SANITARY SEWER
---	EX. SECONDARY WATERLINE
---	EX. TELEPHONE LINE
---	EX. GAS LINE
---	EX. CULINARY WATERLINE
---	SECTION CORNER
---	MONUMENT
---	CONTROL POINT
---	EG CONTOUR MINOR
---	EG CONTOUR MAJOR
---	FG CONTOUR MINOR
---	FG CONTOUR MAJOR
---	NEW ASPHALT
---	EXISTING ASPHALT
---	30" HIGH BACK CURB
---	30" RELEASE GUTTER



GRADING / DRAINAGE PLAN



REVISIONS:
DATE: 10/15/14
PROJECT: C.D.
DRAWN BY: J.J.
PLOT: 10-29-2014

DRAWING DESCRIPTION:
WASH GRADING PLAN

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RASMUSSEN RESIDENCE
WEBER CANYON
UINTAH, UTAH

SHEET NUMBER:
C1.0

GENERAL SITE NOTES

GENERAL

1. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH CURRENT EDITION OF THE INTERNATIONAL BUILDING CODE AND SUPPLEMENTS UNLESS HIGHER STANDARD IS CALLED FOR.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
4. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER BEFORE CONTINUING WITH CONSTRUCTION.
5. THE TYPICAL DETAILS SHALL BE USED WHEREVER APPLICABLE UNLESS OTHERWISE NOTED ON THE DRAWINGS. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
6. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE OF CONFLICT, FOLLOW MOST STRINGENT REQUIREMENT AS DETERMINED BY STRUCTURAL ENGINEER WITHOUT COST TO OWNER.
7. OBSERVATION VISITS TO THE JOB SITE BY SILVERPEAK ENGINEERING FIELD REPRESENTATIVES SHALL NEITHER BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

SITE WORK

1. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. WORK SHALL INCLUDE CLEARING, REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS, GRADING, EXCAVATING, BACKFILLING, AND ALL RELATED ITEMS. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND ORDINANCES OF FEDERAL, STATE, REGIONAL AND LOCAL GOVERNING AUTHORITIES HAVING JURISDICTION.
2. BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND POST WITH WARNING LIGHTS.
3. CONDUCT ALL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES.
4. EXPLOSIVES ARE PROHIBITED ON THE PROJECT SITE UNLESS OTHERWISE DIRECTED BY THE OWNER.
5. BURNING ON PROPERTY WILL BE PERMITTED ONLY AT DESIGNATED AREAS AND TIMES DIRECTED BY OWNER. ATTEND BURNING MATERIALS UNTIL FIRES HAVE BEEN EXTINGUISHED.
6. THE CONTRACTOR SHALL CONTACT UTILITY COMPANIES AND OBTAIN ALL EXISTING UNDERGROUND UTILITY LOCATION INFORMATION PRIOR TO EXCAVATION WORK. LOCATE AND MARK EXISTING UNDERGROUND UTILITIES IN AREAS OF WORK. PROTECT ACTIVE UTILITIES FROM DAMAGE DURING CONSTRUCTION. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATIONS, CONSULT UTILITY OWNER IMMEDIATELY FOR DIRECTIONS. REPAIR DAMAGED UTILITIES TO SATISFACTION OF UTILITY OWNER. OWNER SHALL NOT BE LIABLE FOR ANY DAMAGE TO UNDERGROUND UTILITIES.
7. TEST BORING RESULTS INDICATING SUBSURFACE CONDITIONS ARE NOT INTENDED AS REPRESENTATIONS OR WARRANTIES OF ACCURACY OR CONTINUITY BETWEEN SOIL BEARINGS. IT IS EXPRESSLY UNDERSTOOD THAT OWNER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY CONTRACTOR. DATA ARE MADE AVAILABLE FOR CONVENIENCE OF CONTRACTOR.
8. TOPSOIL IS DEFINED AS FERTILE, FRIABLE, NATURAL SOIL OF LOAMY CHARACTER, FREE OF CLAY, SUBSOIL, CLAY LUMPS, OR STONES IN EXCESS OF 2" IN GREATEST DIMENSION. TOPSOIL SHALL BE TYPICAL OF THE PROJECT LOCALITY AND SHALL CONTAIN NO CHEMICALS HARMFUL TO PLANT GROWTH.
9. FILL IS DEFINED AS MATERIAL FOR FILLING AND BACKFILLING THAT SHALL BE CLEAN SUBSOIL FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN GREATEST DIMENSION, TOPSOIL, DEBRIS, MASTE, FROZEN MATERIALS, VEGETABLE AND OTHER DELETERIOUS MATTER PREVENTING UNIFORM CONTROLLABLE COMPACTION.
10. SOIL TESTS PERFORMED SHALL INCLUDE:
 - A. OPTIMUM MOISTURE - MAXIMUM DENSITY CURVE (FOR EACH SOIL ENCOUNTERED).
 - B. COMPRESSIVE STRENGTH AND/OR BEARING TEST (OF EACH SOIL STRATA)
 - C. FIELD DENSITY TEST
 - D. TEST REPORTS ON BORROW MATERIAL
 - E. CONTRACTOR SHALL EMPLOY CONSULTANTS OR TESTING SERVICES TO PERFORM INSPECTIONS AND TESTS NECESSARY TO ASSURE THE SPECIFIED COMPACTION AND OTHER MINIMUM REQUIREMENTS.
 - F. A COPY OF ALL SOIL TEST RESULTS SHALL BE SUBMITTED TO THE OWNER FOR ITS RECORD.
11. UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL CLEAR AND DISPOSE ALL VEGETATION WITH THE LIMITS OF CONSTRUCTION AREAS AS SHOWN ON THE DRAWINGS.
12. ALL TREES, BUSHES, ETC., SHALL BE CUT WITH THE STUMPS HAVING AT LEAST 6 INCHES OF PROJECTION ABOVEGROUND, SO THEY WILL NOT BE MISSED DURING GRUBBING OPERATIONS. DISPOSAL OF VEGETATION INCLUDING LIMBS, PULP OR FIREWOOD, SHALL BE BY BURNING COMPLETELY, OR OTHERWISE REMOVING AND DISPOSING OF AS DIRECTED.
13. ALL CONSTRUCTION AREAS ON WHICH WORK IS TO BE PERFORMED, INCLUDING EXCAVATION, EMBANKMENT, ROADS, PARKING AREAS, OPERATING AREAS, OR OTHER AREAS AS SHOWN ON DRAWINGS SHALL BE STRIPPED OF ALL TOP SOIL AND DEBRIS TO A DEPTH OF 4". THIS MATERIAL CAN BE STOCKPILED, RAKED, AND CLEANED OF DEBRIS, AND REUSED AS FILL AT THE DISCRETION OF THE OWNER.
14. CONTRACTOR SHALL REMOVE FROM THE CONSTRUCTION AREA ALL STUMPS, INCLUDING THEIR ROOT STRUCTURE, DOWN TIMBER AND DEBRIS (INCLUDING CONCRETE SLABS, FOUNDATIONS, STRUCTURES, ETC.) ALL MATERIAL LYING ON THE SURFACE OR PARTIALLY BURIED SHALL BE REMOVED. FULLY RECOVERED MATERIALS NEED NOT BE REMOVED UNLESS SO ORDERED BY THE OWNER. DISPOSAL OF GRUBBING MATERIALS SHALL BE BY HAULING OFF SITE, OR BURNING.
15. (NOT USED)
16. CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING A BENCHMARK FOR USE IN SITE PREPARATION.
17. THE CONTOUR LINES AND ELEVATIONS ON THE TOPOGRAPHICAL DRAWINGS SHOWING EXISTING ELEVATIONS ARE ONLY APPROXIMATE; THEREFORE, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING THE AMOUNT OF GRADING, EARTHWORK, AND FILL MATERIAL REQUIRED. OWNER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF CONTOUR LINES OF ELEVATIONS SHOWING EXISTING ELEVATIONS.
18. EXCAVATION FOR TRENCHES
 - A. DIG TRENCHES TO A WIDTH TO SUFFICIENTLY PROVIDE AMPLE WORKING ROOM. PROVIDE 6" TO 9" CLEARANCE ON BOTH SIDES OF PIPE OR CONDUIT.
 - B. EXCAVATE TRENCHES TO DEPTH INDICATED OR REQUIRED. CARRY DEPTH OF TRENCHES FOR PIPING TO ESTABLISH INDICATED FLOW LINES AND INVERT ELEVATIONS. BEYOND BUILDING PERIMETER, KEEP BOTTOMS OF TRENCHES SUFFICIENTLY BELOW FINISH GRADE TO AVOID FREEZE-UPS.
 - C. FOR PIPES, CONDUIT, TANKS AND OTHER MECHANICAL/ELECTRICAL WORK INDICATED TO RECEIVE SUBBASE, EXCAVATE TO SUBBASE DEPTH INDICATED, OR, IF NOT OTHERWISE INDICATED, TO 6" BELOW BOTTOM OF WORK TO BE SUPPORTED.
 - D. DO NOT BACKFILL TRENCHES UNTIL ALL TESTS AND INSPECTIONS HAVE BEEN COMPLETED.
19. STABILITY OF EXCAVATION
 - A. SLOPE SIDES OF EXCAVATION TO COMPLY WITH LOCAL CODES AND ORDINANCES HAVING JURISDICTION. SHORE AND BRACE WHERE SLOPING IS NOT POSSIBLE BECAUSE OF SPACE RESTRICTIONS OR STABILITY OF MATERIAL EXCAVATED. MAINTAIN SIDES AND SLOPES OF EXCAVATION IN SAFE CONDITION UNTIL COMPLETION OF BACKFILLING.

20. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. PROVIDE AND MAINTAIN PUMPS, SUMPS, SUCTION AND DISCHARGE LINES, TEMPORARY DRAINAGE DITCHES, AND OTHER DEWATERING SYSTEM COMPONENTS NECESSARY TO CONVEY WATER AWAY FROM EXCAVATION.
21. STOCKPILE SATISFACTORY EXCAVATED MATERIALS WHERE DIRECTED BY OWNER, UNTIL REQUIRED FOR BACKFILL OR FILL. PLACE, GRADE AND SHAPE STOCKPILES FOR PROPER DRAINAGE AND LOCATE STOCKPILES AWAY FROM EDGE OF EXCAVATIONS. DISPOSE OF EXCESS SOIL MATERIAL AND WASTE MATERIALS AS SPECIFIED HEREIN.
22. FILL MATERIAL MUST BE DEPOSITED AND SPREAD IN UNIFORM HORIZONTAL LIFTS, NOT MORE THAN 8" THICK, LOOSE MEASUREMENT, AND THESE LIFTS ARE TO BE KEPT APPROXIMATELY LEVEL. EACH LIFT SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D-1557). FIELD DENSITY TESTS (ASTM-D-1586) SHALL BE PERFORMED AT REGULAR INTERVALS TO CHECK ADEQUACY OF THE COMPACTION. MOISTURE CONTENT SHALL NOT VARY MORE THAN 3% ABOVE OR BELOW OPTIMUM.
23. REMOVAL OF UNSUITABLE MATERIAL
 - A. UNSUITABLE MATERIAL IN SOFT SPOTS SHALL BE REMOVED TO THE DEPTH REQUIRED TO PROVIDE A FIRM FOUNDATION AND SHALL BE REPLACED WITH A MATERIAL EQUAL TO OR BETTER THAN THE BEST SUBGRADE MATERIAL ON THE SITE. THE IN-PLACE MATERIALS, I.E. NATURAL OR EXCAVATED AREAS, SHALL BE PROOF ROLLED AND TOP 6 INCHES SHALL BE BROUGHT UP TO 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D-1557).
 - B. UNSUITABLE MATERIAL SHALL BE DEFINED AS ANY SOIL CONTAINING LOOSE SANDS, SILTS, DEBRIS AND/OR ORGANIC MATERIAL OR ANY KIND SUCH AS MUCK, PEAT, ORGANIC SILT TOPSOIL, SOD, OR VEGETABLE MATTER.
 - C. AREAS REQUIRING IMPORTATION OF FILL MATERIAL SHALL BE BROUGHT TO ROUGH GRADE ELEVATIONS IN LIFTS NOT TO EXCEED 8.0 INCHES LOOSE (APPROXIMATELY 6.0 INCHES COMPACTED), AND EACH LIFT SHALL BE COMPACTED TO REQUIRED DENSITY AND REQUIRED MOISTURE.
 - D. THE MOISTURE CONTENT FOR ALL MATERIALS TO BE COMPACTED SHALL BE BROUGHT TO APPROXIMATE OPTIMUM CONDITIONS BY THE ADDITION OF WATER, BY THE BLENDING OF DRY MATERIAL, OR BY AERATION OF THE EXISTING MATERIAL.

STRUCTURAL FILL

1. MATERIAL PLACED AS FILL TO SUPPORT FOUNDATIONS SHOULD BE NON-EXPANSIVE GRANULAR SOIL. THE NATURAL GRAVEL EXCLUSIVE OF TOPSOIL, ORGANIC, OVER-SIZE AND OTHER DELETERIOUS MATERIAL IS GENERALLY SUITABLE FOR USE AS STRUCTURAL FILL IF IT MEETS THE REQUIREMENTS INDICATED BELOW.

MATERIALS RECOMMENDED FOR IMPORTED STRUCTURAL FILL

FILL TO SUPPORT	RECOMMENDATIONS
FOOTINGS	NON-EXPANSIVE GRANULAR SOIL PASSING NO. 200 SIEVE < 95% LIQUID LIMIT < 30% MAXIMUM SIZE 4 INCHES
SLAB SUPPORT	NON-EXPANSIVE GRANULAR SOIL PASSING NO. 200 SIEVE < 90% LIQUID LIMIT < 30% MAXIMUM SIZE 6 INCHES

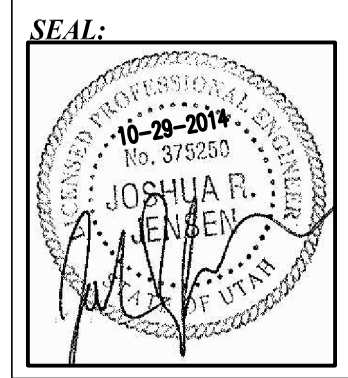
2. COMPACTION OF MATERIALS PLACED AT THE SITE SHOULD EQUAL OR EXCEED THE MINIMUM DENSITIES AS INDICATED BELOW WHEN COMPARED TO THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.

MATERIALS RECOMMENDED FOR IMPORTED STRUCTURAL FILL

FILL TO SUPPORT	RECOMMENDATIONS
FOOTINGS	> 95%
CONCRETE FLATWORK & PAVEMENT	> 90%
LANDSCAPING	> 85%
RETAINING WALL BACKFILL	95%

TO FACILITATE THE COMPACTION PROCESS, THE FILL SHOULD BE COMPACTED AT A MOISTURE CONTENT WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT. THE BASE COURSE SHOULD BE COMPACTED TO AT LEAST 90 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557. FILL PLACED FOR THE PROJECT SHOULD BE FREQUENTLY TESTED FOR COMPACTION

3. ALL EARTH WORK SHALL CONFORM WITH THE SITE GEOTECHNICAL REPORT IF SUCH A REPORT HAS BEEN PRODUCED.



REVISION:
DATE: 10/29/14
PROJECT: C.D.
DRAWN BY: C.D.
PLOT: 10-29-2014

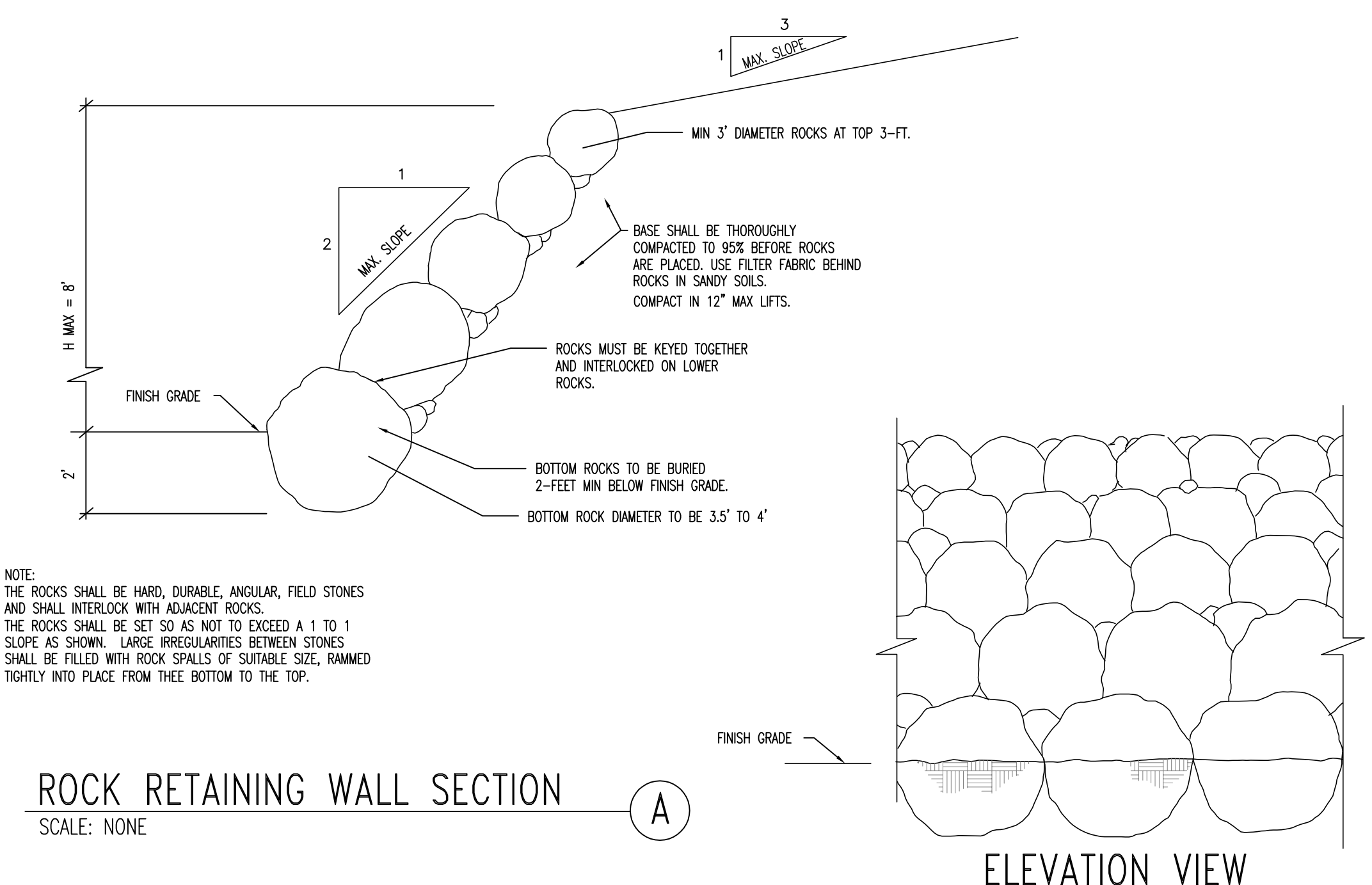
DRAWING DESCRIPTION:
ROCK WALL DETAILS

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RASMUSSEN RESIDENCE
WEBER CANYON
UINTAH, UTAH

SHEET NUMBER:
C2.0
ROCK WALL DETAILS



NOTE:
THE ROCKS SHALL BE HARD, DURABLE, ANGULAR, FIELD STONES AND SHALL INTERLOCK WITH ADJACENT ROCKS.
THE ROCKS SHALL BE SET SO AS NOT TO EXCEED A 1 TO 1 SLOPE AS SHOWN. LARGE IRREGULARITIES BETWEEN STONES SHALL BE FILLED WITH ROCK SPALLS OF SUITABLE SIZE, RAMMED TIGHTLY INTO PLACE FROM THE BOTTOM TO THE TOP.

ROCK RETAINING WALL SECTION
SCALE: NONE

ELEVATION VIEW

