

March 18, 2015

ADDENDUM NO. 3

TO: CONTRACT DOCUMENTS
FOR: EAGLE POINTE LANDSLIDE REMEDIATION PROJECT, LOCATED SOUTH OF PARKWAY DRIVE
AT APPROX. 740 EAST — PROJECT # NSL.037 (NSL Project # 14-041)
FOR: CITY OF NORTH SALT LAKE, UTAH

A. **SECTION 00410 - BID SCHEDULE.**

1. **BID SCHEDULE "B":**

- a. Bid Item No. 25: Change thickness of gunite to 5-inches, minimum.
- b. Add Bid Items No. 25-b, 25-c and 25-d for alternate work for Bid Item No. 25 as follows:

Item No.	Description	Amounts & Units	Unit Price	Bid Total
25-b.	Furnish and place sculpted gunite coating over face of buttress walls; including wire mesh, sculpting, and staining, and all appurtenant work	1,400 s.f.	\$ _____ per s.f.	\$ _____
25-c.	Furnish and place WWM forms for facing buttress walls with alternate rock fill; including welded wire mesh forms, rock fill, and all appurtenant work	4,600 s.f.	\$ _____ per s.f.	\$ _____
25-d.	Furnish and place WWM forms for facing buttress walls with alternate top soil and native grass seeding; including welded wire mesh forms, top soil & native grass seeding, and all appurtenant work	4,600 s.f.	\$ _____ per s.f.	\$ _____

- c. Delete Bid Item No. 27 for Rockery Walls, which was added to the Bid Schedule in Addendum #1.
- d. Add new Bid Item No. 27 as follows:

Item No.	Description	Amounts & Units	Unit Price	Bid Total
27.	Furnish and place erosion control mat, complete, at top of buttress walls as indicated	13,400 s.f.	\$ _____ per s.f.	\$ _____

2. **BID SCHEDULE "C":**

- a. Bid Item No. 21: Change thickness of gunite to 5-inches, minimum.

b. Add Bid Items No. 21-b, 21-c and 21-d for alternate work for Bid Item No. 21 as follows:

Item No.	Description	Amounts & Units	Unit Price	Bid Total
21-b.	Furnish and place sculpted gunite coating over face of buttress walls; including wire mesh, sculpting, and staining, and all appurtenant work	9,000 s.f.	\$ _____ per s.f.	\$ _____
21-c.	Furnish and place WWM forms for facing buttress walls with alternate rock fill; including welded wire mesh forms, rock fill, and all appurtenant work	3,000 s.f.	\$ _____ per s.f.	\$ _____
21-d.	Furnish and place WWM forms for facing buttress walls with alternate top soil and native grass seeding; including welded wire mesh forms, top soil & native grass seeding, and all appurtenant work	3,000 s.f.	\$ _____ per s.f.	\$ _____

c. Add Bid Item No. 23 as follows:

Item No.	Description	Amounts & Units	Unit Price	Bid Total
23.	Furnish and place erosion control mat, complete, at top of buttress walls as indicated	22,400 s.f.	\$ _____ per s.f.	\$ _____

3. **BID SCHEDULES "A" thru "D":**

a. BID SCHEDULES "A" thru "D" are to be removed from the Contract Documents; and the attached BID SCHEDULES "A" thru "D" (REVISED) shall be added to the Contract Documents.

B. **SECTION 00500 - CONSTRUCTION CONTRACT.**

1. Paragraph 2.2 CONTRACT TIME.

- a. Sub-Paragraph "A". Change Contract Time to 120 calendar days.
- b. Change Anticipated Notice to Proceed to a date about two weeks after the Bid Opening, as set by the City.

C. SECTION 00690 - SUPPLEMENTAL CONDITIONS.

1. Paragraph 9.1 SPECIAL CONDITIONS.

a. Add Sub-Paragraph "E" as follows:

"E. Surveys. The Owner shall provide construction survey to establish lines and grades as required for proper execution of the work. Survey shall provide alignment and grade data in the form of offset stakes or markers, located at convenient distance from centerline of work, and referenced to the centerline of the work.

1. Structures. Line and grade stakes shall be provided for each structure, as required, for proper construction of structures.

2. Slope Staking. Slope stakes shall be provided at 50-foot intervals and at all changes in alignment.

3. The Contractor shall transfer line and grade, from the survey stakes and markers referred to above, to the work and shall be responsible for the accuracy of the measurements from the survey stakes and markers to the work.

4. The Contractor shall be responsible for the protection of all survey control points established by the Owner. The Owner will be reimbursed by the Contractor for re-establishing survey stakes, markers or bench marks that have been disturbed or destroyed by the Contractor.

a. The Owner will establish construction survey stakes one time. Any additional construction staking will be at the Contractor's expense."

b. Add Sub-Paragraph "F" as follows:

"F. Soil Mixing Requirements. It has been our intent to use the material from the grading of the upper scarp area as material for construction of the lower buttresses. We recognize that the material in the upper scarp area consists of interbedded Silts (ML), Sands (SM/SP) and Gravels (GP). From a design perspective, the biggest concern with the use of the material is getting a material phi angle greater than or equal to 34°. We anticipate that in order to achieve this soil strength, mixing of the material will be required. Fill material consisting of only Silts (ML) and/or Sands (SM/SP) will not be allowed in the buttress fill without mixing gravel into the soils. The buttress fill material, in accordance with the specifications, should have a minimum of 45% of the material be greater than 3/4-inch size. The contractor should be aware that mixing of the excavated upper scarp soils will require blending/mixing to meet project requirements."

D. SECTION 02100 - MEASUREMENT & PAYMENT.

1. Paragraph 1.03.AP Furnish and Place Guniting Coating... (Bid Items No. B-25 and C-21):

a. Add Sub-Paragraph 1.03.AP.3, AP.4 and AP.5 as follows:

"3. Bid Items No. B-25-b and C-21-b are alternates to be used instead of the Guniting Coating: Basis for Payment: Includes preparing the face of the walls as required and as directed; furnishing and placing wire mesh, as indicated and as directed; furnishing and placing guniting to the walls to the thickness required for creating the desired sculpted look, as directed; staining guniting surfaces as required and as directed; and all appurtenant work to complete the sculpted surfaces."

"4. Bid Items No. B-25-c and C-21-c are alternates to be used instead of the Guniting Coating: Basis for Payment: Includes preparing the face of the walls as required and as directed; furnishing and placing welded wire mesh forms, as indicated and as directed; furnishing and placing rock fill, of uniform color, size and texture, inside of the forms, as indicated; completing the buttress walls; and all appurtenant work to complete the surface of the walls."

- “5. Bid Items No. B-25-d and C-21-d are alternates to be used instead of the Gunite Coating and WWM Forms with Rock Fill: Basis for Payment: Includes preparing the face of the walls as required and as directed; furnishing and placing welded wire mesh forms, as indicated and as directed; furnishing and placing geotextile fabric along inside face of forms, as indicated; furnishing, placing and compacting top soil material inside of forms, as indicated and as directed; completing the buttress walls; furnishing and placing native grass seed mix over face of forms, as indicated; and all appurtenant work to complete the surface of the walls.”

E. SECTION 02300 - GENERAL EARTHWORK.

1. Paragraph 3.10 RESTORING NATIVE VEGETATION...

a. Sub-Paragraph C.4. Revise to read as follows: “Seed Mix. Seed mix shall be pre-mixed by the supplier, and shall be a blend of the following, or acceptable equal”.

b. Sub-Paragraph C.5. Revise to read as follows: “Seed to be applied by hydraulic method, at the rate specified and as recommended by the supplier. Wood fiber mulch, fertilizer and polymer shall mixed and applied by hydraulic method, at the rate of about 5 pounds per 100 square feet, or as recommended by the supplier.”

F. PROJECT DRAWINGS.

1. The following drawings have been revised and new PDF copies have been added to the Contract Documents: G.101, C.102, C.103, and C.301 thru C.308.
2. The following drawings have been added to the Contract Documents: W.101, W.102, D.105, D.106 and ER.101.

GILSON ENGINEERING

SECTION 00400
BID

PART 1 GENERAL

1.1 Bid Proposal

- A. The undersigned Bidder after having personally and carefully examined all conditions surrounding the Work and the Contract Documents, proposes to furnish all labor, equipment, tools and machinery and to furnish and deliver all materials not specifically mentioned as being furnished by the OWNER, which is required in and about the construction of the Construction Contract known as: "Eagle Pointe Landslide Remediation Project, Located South of Parkway Drive at Approx. 740 East -- Project No. NSL.037 (NSL Project #14-041)".
- B. The undersigned Bidder proposes to complete the Work for the price or prices listed in the Bid Schedule (Section 00410) and understands that quantities for Unit Price Work are not guaranteed.
- C. The undersigned Bidder proposes to furnish bonds with the Construction Contract, signed by a surety company satisfactory to the OWNER, in an amount equal to the Construction Contract amount conditioned to insure compliance with all requirements of the Contract Documents.
- D. The undersigned Bidder encloses a certified check, cashier's check or a Bid Bond for _____ Dollars (\$ _____) which is five (5) percent of the total Bid amount payable to the OWNER, as a guarantee of good faith, and which it is agreed will be forfeited to the OWNER as liquidated damages in the event of the failure of the undersigned to enter into a contract and furnish satisfactory bonds and insurance to the OWNER.
- E. The undersigned Bidder proposes to execute the attached Construction Contract and insurance within ten (10) days after the Notice of Award, and to begin work within five (5) days after the Notice to Proceed has been issued.
- F. If OWNER finds it necessary to further define the Work, Contract Price, Contract Time or some other portion of the Construction Contract, after receiving this Bid, the Bidder promises to execute a Construction Contract Supplement prior to or concurrent with the execution of the Construction Contract, if the Construction Contract Supplement is acceptable to the Bidder.
- G. It is understood that the OWNER has the right to reject this proposal or to accept it at the prices listed in the Bid Schedule.

PART 2 EXECUTION

2.1 Bidder

A. The Bidder is as follows:

Name: _____

Address: _____

Telephone number: _____

Facsimile number: _____

Tax identification number: _____

Website / email: _____

A. Bidder holds license number _____ issued on the _____ day of _____, by the Utah State Department of Commerce, Division of Occupational and Professional Licensing. Bidder is licensed to practice as a _____ Contractor. License renewal date is the _____ day of _____, 2015.

C. The undersigned hereby acknowledges receipt of the following Addenda:

Addendum No. 1 _____ (initial)

Addendum No. 2 _____

Addendum No. 3 _____

2.2 Bidder's Signature

A. Date: _____

B. Bidder's Signature: _____

C. Please print Bidder's name here: _____

D. Title: _____

END OF DOCUMENT

**SECTION 00410
 BID SCHEDULE**

Bidder agrees to perform all the work described in the Contract Documents for the following unit prices or lump sum prices.

**Eagle Pointe Landslide Remediation Project --- Project No. NSL.037
 (NSL Project # 14-041); for the City of North Salt Lake, Utah**

SCHEDULE “A” --- UPPER SITE GRADING (APPROX. 1.8 ACS.)

Item No.	Description	Amounts & Units	Unit Price	Bid Total
1	Mobilization	Lump Sum		
2	Traffic Control	Lump Sum		
3	Erosion Control	Lump Sum		
4	General earthwork for site work from toe of scarp (approx. 50,200 c.y.); excavated material to be stockpiled at Tunnel Springs Park (short haul)	Lump Sum		
4-A *	General earthwork for site work from toe of scarp, based on attached “Alternate Upper Slide Area Site Plan & Upper Cross Sections”, pages 1 thru 5 (short haul) Addendum #1	Lump Sum		
5	Construct 3-ft wide x 4-ft deep Toe Drain Catchment Trench, complete; including all required earthwork, 6” slotted pipe with fabric sleeve, fabric wrap, rock fill, and all appurtenant work	420 l.f.		
6	Restore native vegetation in disturbed work areas	71,000 s.f.		
	TOTAL -- SCHEDULE “A” (with Bid Item #4)			
	TOTAL-- SCHEDULE “A” (with alternate Bid Item No. 4-A)			

* Note: Addendum #1: This item to be used if the Alternate Bid Schedule “D” is used. Use of this bid item will alter the approximate earthwork quantities shown in the description for Bid Item No. 4.

**SCHEDULE "B" --- MIDDLE SITE GRADING (APPROX. 3.4 ACS.),
DRAINAGE SYSTEMS, & CONSTRUCTING BUTTRESSES**

Item No.	Description	Amounts & Units	Unit Price	Bid Total
1	Mobilization	Lump Sum		
2	Traffic Control	Lump Sum		
3	Erosion Control	Lump Sum		
4	General earthwork for site work to re-grade site (approx. 15,800 c.y.); excavated material (free haul) to be used for fill on-site	Lump Sum		
5	Haul and place select excavated material from stockpile (short haul) for re-grading site (approx. 7,700 c.y. of fill)	Lump Sum		
6	Construct Upper Surface Drainage Ditch; including geomembrane liner and rock fill	340 l.f.		
7	Construct Lower Surface Drainage Ditch; including geomembrane liner and rock fill	400 l.f.		
8	Construct 6" HDPE slotted pipe lines with sleeves for Lower Drainage Ditch	220 l.f.		
9	Construct Connecting Surface Drainage Ditches; including geomembrane liners and rock fill	170 l.f.		
10	Construct 6" HDPE slotted pipe lines with sleeves for Connecting Ditches	40 l.f.		
11	Construct 8" HDPE drainage pipe lines with butt-welded joints	230 l.f.		
12	Construct 10" HDPE drainage pipe lines with butt-welded joints	320 l.f.		
13	Construct 15" Class III reinforced concrete storm drain line	80 l.f.		
14	Connect 6" slotted HDPE pipes to 8" HDPE drainage pipes; including all pipe and fittings	3 ea.		
15	Construct 6" drainage cleanouts; including all pipe and fittings, and covers	3 ea.		
16	Construct 5-ft storm drain manhole, complete	1 ea.		
17	Construct 5-ft storm drain manhole, complete, over existing 21" storm drain on Parkway Drive; including connecting to existing pipe line	1 ea.		

Item No.	Description	Amounts & Units	Unit Price	Bid Total
18	Restore roadway on Parkway Drive; including concrete curb & gutter and sidewalks, roadway pavement, and landscaping	Lump Sum		
19	Construct 6" HDPE slotted pipe line with sleeves for buttress drain	160 l.f.		
20	Construct 8" HDPE drainage pipe for buttress drain	60 l.f.		
21	Connect 8" drainage pipe to storm drain manhole	Lump Sum		
22	Furnish, place and compact gravel blanket material for buttress	740 c.y.		
23	Haul and place select excavated granular material from stockpile for buttress fill	3,500 c.y.		
24	Construct geo-grid reinforced buttress, complete; including all required earthwork, gravel base, geo-grid reinforcement, and all appurtenant work	2,300 c.y.		
25	Furnish and place 5" thick gunite with mesh over face of buttress walls	6,000 s.f.		
25-b	Furnish and place sculpted gunite coating over face of buttress walls; including wire mesh, sculpting and staining, and all appurtenant work	1,400 s.f.		
25-c	Furnish and place WWM forms for facing buttress walls with alternate rock fill; including welded wire mesh forms, rock fill, and all appurtenant work	4,600 s.f.		
25-d	Furnish and place WWM forms for facing buttress walls with alternate top soil & native grass seeding; including welded wire mesh forms, top soil fill & native grass seeding, and all appurtenant work	4,600 s.f.		
26	Restore native vegetation in disturbed work areas	152,000 s.f.		
27	Furnish and place erosion control mats, complete, at top of buttress walls, as indicated	13,400 s.f.		
	TOTAL -- SCHEDULE "B" (with Bid Item # 25)			
	TOTAL -- SCHEDULE "B" (with Alternate Bid Items # 25-b & 25-c)			
	TOTAL --SCHEDULE "B" (with Alternate Bid Items # 25-b & 25-d)			
	TOTAL -- SCHEDULES "A" & "B" (without alternate bid items)			

**SCHEDULE “C” --- LOWER SITE GRADING (APPROX. 2.8 ACS.) &
CONSTRUCTING BUTTRESSES**

Item No.	Description	Amounts & Units	Unit Price	Bid Total
1	Mobilization	Lump Sum		
2	Traffic Control	Lump Sum		
3	Erosion Control	Lump Sum		
4	General earthwork for site work to re-grade site (approx. 3,500 c.y.); excavated material (free haul) to be used for fill on-site	Lump Sum		
5	General earthwork for site work to re-grade site (approx. 6,100 c.y.); excavated material to be stockpiled at Tunnel Springs Park (short haul)	Lump Sum		
6	Construct 6” HDPE slotted pipe lines with sleeves for buttresses	575 l.f.		
7	Construct 8” HDPE SDR35 PVC drain line; including all pipe and fittings	170 l.f.		
8	Connect 8” solid PVC pipe to 6” slotted drain pipe; including all pipe and fittings	Lump Sum		
9	Construct 5-ft storm drain manhole, complete, over existing 21” storm drain on Parkway Drive; including connecting to existing pipe line	1 ea.		
10	Restore roadway on Parkway Drive; including concrete curb & gutter and sidewalks, roadway pavement, and landscaping	Lump Sum		
11	Saw-cut existing post-tensioned concrete pavement	190 l.f.		
12	Saw-cut existing asphalt parking lot pavement	180 l.f.		
13	Remove and dispose of existing post-tensioned concrete pavement, complete	5,150 s.f.		
14	Remove and dispose of existing asphalt parking lot pavement, complete	7,600 s.f.		
15	Remove and dispose of existing concrete block retaining wall, complete (approx. 45 l.f.)	Lump Sum		
16	Remove and dispose of existing 4-ft square storm drain inlet box, complete	1 ea.		
17	Remove and dispose of existing 2-ft square storm drain inlet boxes, complete	1 ea.		

Item No.	Description	Amounts & Units	Unit Price	Bid Total
18	Furnish, place and compact gravel blanket material for buttresses	3,500 c.y.		
19	Haul, place and grade select excavated granular material for buttress fill	42,000 c.y.		
20	Construct geo-grid reinforced buttress, complete; including all required earthwork, gravel base, geo-grid reinforcement, and all appurtenant work	8,230 c.y.		
21	Furnish and place gunite coating, 5" thick, over face of buttress walls, complete; including wire mesh and all appurtenant work	12,000 s.f.		
21-b	Furnish and place sculpted gunite coating over face of buttress walls; including wire mesh, sculpting and straining, and all appurtenant work	9,000 s.f.		
21-c	Furnish and place WWM forms for facing buttress walls with alternate rock fill; including welded wire mesh forms, rock fill, and all appurtenant work	3,000 s.f.		
21-d	Furnish and place WWM forms for facing buttress walls with alternate top soil & native grass seeding; including welded wire mesh forms, top soil fill & native grass seeding, and all appurtenant work	3,000 s.f.		
22	Restore native vegetation in disturbed work areas	119,400 s.f.		
23	Furnish and place erosion control mats, complete, at top of buttress walls, as indicated	22,400 s.f.		
	TOTAL -- SCHEDULE "C" (with Bid Item # 21)			
	TOTAL-- SCHEDULE "C" (with Alternate Bid Items # 21-b & 21-c)			
	TOTAL-- SCHEDULE "C" (with Alternate Bid Items # 21-b & 21-d)			
	TOTAL--SCHEDULES "A", "B" & "C" (without alt. bid items)			

**SCHEDULE “D” --- REMOVE EXISTING ROADWAYS &
MODIFY EXISTING UTILITIES**

Item No.	Description	Amounts & Units	Unit Price	Bid Total
1	Mobilization	Lump Sum		
2	Traffic Control	Lump Sum		
3	Erosion Control	Lump Sum		
4	Cleaning and grubbing work site, complete	Lump Sum		
5	Remove existing roadways, complete, at top of slope; including roadway pavement, concrete curb & gutter and sidewalks, and drainage facilities (approx. 20,800 s.f.)	Lump Sum		
6	Remove and dispose of existing utility lines, complete; including water lines, sewer lines, storm drains, and all appurtenant items; plugging ends of existing pipes to remain in place; and all appurtenant work	Lump Sum		
7	Abandon existing manholes, complete	4 ea.		
8	Construct new 15" dia storm drain line, complete: including removing existing pipe and boxes; and constructing new 15" corrugated HDPE storm drain pipe line	225 l.f.		
9	Construct new 5-ft dia storm drain manhole over existing 15" storm drain on Pace Lane; including connecting to existing pipe line	1 ea.		
10	Construct new 5-ft dia storm drain manhole over existing 8" land drain on Silvertree Lane; including connecting to existing pipe line	1 ea.		
11	Construct new catch basins in existing curb & gutter on Silvertree Lane; including removing existing concrete work; and constructing new curb & gutter	2 ea.		
12	Construct new 8" dia sewer line, complete: including removing existing pipe and appurtenant items; and constructing new 8" SDR35 PVC sewer line	200 l.f.		
13	Construct new 5-ft dia sewer manhole over existing 8" sewer line on Pace Lane; including connecting to existing pipe line	1 ea.		
14	Construct new 5-ft dia sewer manhole over existing 8" sewer line on Silvertree Lane; including connecting to existing pipe line	1 ea.		

Item No.	Description	Amounts & Units	Unit Price	Bid Total
15	Construct new 8" PVC pressure irrigation line, complete: including removing existing pipe and appurtenant items ; and constructing new 8" PVC pressure irrigation lines	220 l.f.		
16	Connect new 8-in PVC pipe to existing 10" PVC line on Pace Lane; including new pipe & fittings, new couplings, and all appurtenant work	1 ea.		
17	Connect new 8-in PVC pipe to existing 8" PVC line on Silvertree Lane; including new pipe & fittings, new couplings, and all appurtenant work	1 ea.		
18	Restore native vegetation in disturbed work areas	35,000 s.f.		
	TOTAL -- SCHEDULE "D"			
	TOTAL -- SCHEDULES "A" thru "D" (without alternate bid items)			

Note.: Bidders are advised to submit bids for all four Bid Schedules. It is anticipated that a single contract will be awarded for the lowest, responsive and responsible bid for the total overall project, including Schedules "A", "B", "C" and "D". The City reserves the right to award separate contracts for any single schedule or combinations of schedules, if it is in the best interest of the City.

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(ALTERNATE) BID SCHEDULE "D" EAGLEPOINTE UTILITY IMPROVEMENTS

NOTE: No separate traffic control bid item is included; any costs associated with traffic control shall be included in unit prices.

		UNIT	CONTRACT QUANTITY	CONTRACT UNIT PRICE	CONTRACT TOTAL
General					
1	Mobilization/demobilization	LUMP	1		\$ -
2	SWPPP for Utility Work, to include construction entrances, berming, straw wattles, silt fencing, inlet box protection, ditching and other BMPs as may be required.	LUMP	1		\$ -
Roadway					
3	Remove and dispose of existing asphalt	SF	8,456		\$ -
4	Remove and dispose of existing curb and gutter	LF	526		\$ -
5	Remove and dispose of existing sidewalk	LF	617		\$ -
6	Sidewalk ramps, including saw cutting ramps into existing curb and gutter as required, forming of ramps, compacted base under concrete, all concrete, curing compound, protection and detector pads	EACH	4		\$ -
7	Asphalt 3" thickness - Place in one lift, including tack coat on all concrete edges, pay reductions as applicable from UDOT Standard Specifications shall apply.	SF	9,947		\$ -
8	Base 8" thick, meeting UDOT specified gradation, compacted to 95% of T-180 proctor density, pay reductions as applicable from UDOT Standard Specifications shall apply.	SF	9,947		\$ -
9	30" Highback Curb and Gutter - includes subgrade preparation and 6" compacted base, curing agent and protection, driveway and ramp cuts.	LF	676		\$ -
10	4' Sidewalk - includes subgrade preparation and 6" compacted base, reinforcing steel, curing agent and protection from traffic during the curing period (7 days minimum).	LF	311		\$ -
Sewer					
11	Remove and cap existing sewer lateral at main, includes exposing lateral at main, furnishing and installing a cap or plug per SDS requirements, and backfill and compaction of excavated material.	EACH	6		\$ -
12	Sewer Manhole Adjustment - removing sections as required to bring rim elevation within 2 feet of revised grade. Removed sections are to be salvaged and used elsewhere.	EACH	1		\$ -
13	Raising existing manholes to proper grade and placement of the concrete ring around the manhole after paving operations. Price includes all testing and protection during construction.	EACH	2		\$ -
14	4" Service Lateral adjustment including locating existing lateral, installing new bend and cleanout, installing approximately 30 LF of new 4" piping beyond the new PUE, excavation, pipe bedding, grade control, backfill, compaction, marker post, etc.	EACH	1		\$ -

(ALTERNATE) BID SCHEDULE "D" EAGLEPOINTE UTILITY IMPROVEMENTS

NOTE: No separate traffic control bid item is included; any costs associated with traffic control shall be included in unit prices.

		UNIT	CONTRACT QUANTITY	CONTRACT UNIT PRICE	CONTRACT TOTAL
15	4" Service Laterals extension, including all excavation, locating end of the existing lateral, furnishing and installing approximately 20 LF of new 4" lateral, pipe bedding, grade control, piping, backfill, compaction, marker post, etc.	EACH	2		\$ -
Water					
16	Shut off existing laterals at main, includes exposing the main and corp stop, removing corp stop and installing a Romac CL1 full circle repair clamp or equivalent around the main line, removing the lateral, and backfill and compaction of all excavated material.	EACH	3		\$ -
17	Removal of existing water main, backfill and compaction of all excavated material.	LF	273		\$ -
18	Removal of existing water laterals that were connected to existing water main that is to be removed. Includes backfill and compaction of all excavated material.	EACH	3		\$ -
19	10" HDPE Main, includes all excavation and disposal of unsuitable soil material, fusion and installation of pipe, pipe bedding, select backfill, compaction, copper tracer wire, disinfection, pressure testing, bacteria testing and acceptance by City. Pipe shall be installed to provide a minimum of 42" cover over the top of the pipe from final grades.	LF	348		\$ -
20	8" Gate Valves with valve boxes, accessories, connection to tracer wire. Includes necessary valve key extensions when 2" operating nut is below 5' from ground surface.	EACH	1		\$ -
21	8" 22.5-degree bend with all accessories	EACH	1		\$ -
22	10" 22.5-degree HDPE bend - optional	EACH	1		\$ -
23	10" 45-degree HDPE bend	EACH	1		\$ -
24	10" 45-degree DI Flanged bend	EACH	1		\$ -
25	Furnish and install 10" HDPE Flange Adapter with metal backing ring. To be installed at connections to existing pipe or fittings to transition between PVC or flanged fittings to HDPE pipe.	EACH	2		\$ -
26	Connect to existing piping - to include locating ends of existing HDPE and PVC piping.	EACH	2		\$ -
27	Remove and salvage existing fire hydrant assembly	EACH	1		\$ -
28	Install Complete Hydrant Assembly using salvaged hydrant, to include all excavation, exposing existing main at the end of the existing HDPE line, installing new 1/4 bend, reducer, valve and piping as required, gravel sumps, plastic wrap, backfill, rotating pumper nozzle to proper alignment for a complete hydrant installation.	EACH	1		\$ -

(ALTERNATE) BID SCHEDULE "D" EAGLEPOINTE UTILITY IMPROVEMENTS

NOTE: No separate traffic control bid item is included; any costs associated with traffic control shall be included in unit prices.

		UNIT	CONTRACT QUANTITY	CONTRACT UNIT PRICE	CONTRACT TOTAL
29	Install 3/4" Water Lateral on 10" HDPE water main, utilizing salvaged metersetter and meter box. Includes Romac 202N-H-8.68 x 3/4" IP saddle (or approved saddle compatible with HDPE pipe), new corp stop and copper lateral into lot, marker post - per North Salt Lake Standards. Includes tracer wire on all laterals.	EACH	3		\$ -
Secondary Water					
30	Remove and cap existing dual laterals on existing main. Includes exposing the saddle at the main line, removal of the existing lateral from the saddle and installing a brass plug in the saddle per NSL requirements.	EACH	1		\$ -
31	Removal of existing secondary water main, backfill and compaction of all excavated material.	LF	324		\$ -
32	Removal of existing water laterals that were connected to existing secondary water main that is to be removed. Includes backfill and compaction of all excavated material.	EACH	3		\$ -
33	10" HDPE Main, includes all excavation and disposal of unsuitable soil material, fusion and installation of pipe, pipe bedding, select backfill, compaction, copper tracer wire, disinfection, pressure testing, bacteria testing and acceptance by City. Pipe shall be installed to provide a minimum of 30" cover over the top of the pipe from final grades.	LF	35		\$ -
34	12" HDPE Main, includes all excavation and disposal of unsuitable soil material, fusion and installation of pipe, pipe bedding, select backfill, compaction, copper tracer wire, disinfection, pressure testing, bacteria testing and acceptance by City. Pipe shall be installed to provide a minimum of 30" cover over the top of the pipe from final grades.	LF	369		\$ -
35	10" Gate Valves with valve boxes, accessories, connection to tracer wire. Includes necessary valve key extensions when 2" operating nut is below 5' from ground surface.	EACH	2		\$ -
36	10" 22.5-degree bend with all accessories	EACH	1		\$ -
37	10" 45-degree HDPE bend	EACH	1		\$ -
38	12" 22.5-degree HDPE bend - optional	EACH	1		\$ -
39	12" 45-degree HDPE bend	EACH	1		\$ -
40	12" 45-degree DI Flanged bend	EACH	1		\$ -
41	12"x10" HDPE Tee	EACH	1		\$ -
42	Furnish and install 10" HDPE Flange Adapter with metal backing ring. To be installed at connections to existing pipe or fittings to transition between PVC or flanged fittings to HDPE pipe.	EACH	1		\$ -
43	Furnish and install 12" HDPE Flange Adapter with metal backing ring. To be installed at connections to existing pipe or fittings to transition between PVC or flanged fittings to HDPE pipe.	EACH	2		\$ -

(ALTERNATE) BID SCHEDULE "D" EAGLEPOINTE UTILITY IMPROVEMENTS

NOTE: No separate traffic control bid item is included; any costs associated with traffic control shall be included in unit prices.

		UNIT	CONTRACT QUANTITY	CONTRACT UNIT PRICE	CONTRACT TOTAL
44	Connect to existing piping - to include locating ends of existing HDPE and PVC piping.	EACH	2		\$ -
45	Laterals - Per lot price, two lots share lateral from main, includes Romac 202N-H service saddle, curb valves, curb box, all fittings, purple poly tubing, PVC stub a minimum of 10' into the lot with a 2 x 4 marker post, meter yoke and meter box with lid per North Salt Lake details. Includes 2" conduit between meter boxes and tracer wire on all laterals.	EACH	1		\$ -
Storm Drainage					
46	Removal of existing 15" Reinforced concrete piping, including all excavation, and backfill and compaction of the excavated material.	LF	467		\$ -
47	Removal of existing catch basins and manholes, including all excavation, and backfill and compaction of the excavated material.	EACH	7		\$ -
48	Remove and cap existing land drain laterals, including all excavation, patching of the storm drain main, all excavation, and backfill and compaction of the excavated material.	EACH	1		\$ -
49	Convert or replace existing manhole with combo box, complete with grates, select backfill, compaction, etc.	EACH	1		\$ -
50	15" SDR 11 HDPE Storm Drain Pipe, includes excavation, bedding material, trench shoring and trench stabilization material as required, select backfill, compaction, furnishing all materials, fusion welding, grade control, compaction, etc. for a complete installation.	LF	432		\$ -
51	Inlet Boxes, complete with grates, excavation, select backfill, compaction, etc.	EACH	2		\$ -
52	Combination Boxes, complete with grates, excavation, select backfill, compaction, etc. (Does not include box at existing manhole. See previous item).	EACH	1		\$ -
53	Cleanout Manholes, complete with ring and cover, excavation, select backfill, compaction, raising to grade and installing concrete ring as required by NSL City.	EACH	4		\$ -
54	Connect to existing manhole, or catch basin, including all excavation, cutting or preparation as required for the connection, grouting on the inside and outside as required for a water-tight connection, select backfill and compaction as required for a complete connection. There may be more than one connection per structure.	EACH	5		\$ -
55	Install 4" PVC Land Drain Lateral to 15' into property, including all excavation, pipe bedding, pipe, fittings, connection to box, backfill, compaction, marker post, etc., for a complete lateral assembly.	EACH	3		\$ -
Private Utilities - Quantities are estimates and subject to revision					
56	Terminate existing Rocky Mountain Power (RMP) lines.	EACH	2		\$ -
57	Terminate existing CenturyLink lines.	EACH	2		\$ -

**(ALTERNATE) BID SCHEDULE "D"
EAGLEPOINTE UTILITY IMPROVEMENTS**

NOTE: No separate traffic control bid item is included; any costs associated with traffic control shall be included in unit prices.

		UNIT	CONTRACT QUANTITY	CONTRACT UNIT PRICE	CONTRACT TOTAL
58	Provide trenching for Rocky Mountain Power (RMP) lines. Location to be determined from RMP design layout. Trenching to be per RMP requirements.	LF	457		\$ -
59	Furnish and install 4" Grey Schedule 40 PVC conduit in RMP trench per RMP layout. Includes all piping, glue, joints, and installation of pull string per RMP specifications. Also included is the sand bedding of the conduits per RMP requirements. Upon all conduit installation (may include CenturyLink and Cable), backfilling and compaction of the trench.	LF	457		\$ -
60	Furnish and install 4" PVC conduit under roadways per utility plan provided by the utility companies. Piping to meet private utility requirements. Quantity may vary. Multiple conduits may share the same trench. Unit price to include all excavation, sand bedding, trench backfill, moisture conditioning and compaction. Marker posts are to be installed at the ends of all conduits. Ends shall be plugged to prevent material from entering the conduits.	LF	200		\$ -
61	Furnish and install 4" fiberglass long-sweep elbows as required per RMP layout. Bends may be installed horizontal or vertical. Includes installing pull string through the bends, and capping vertical bends to prevent material from entering the conduits.	EACH	2		\$ -
62	Furnish and install 4" PVC long-sweep elbows as required per RMP layout. Bends may be installed horizontal or vertical. Includes installing pull string through the bends, and capping vertical bends to prevent material from entering the conduits.	EACH	2		\$ -

TOTAL --- ALT. SCHEDULE "D" \$ -

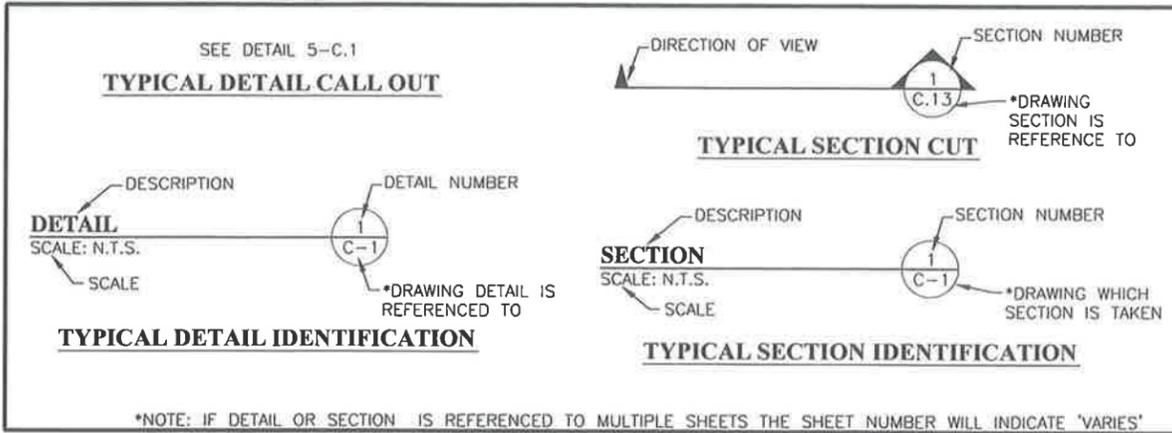
TOTAL --- SCHEDULES "A", "B", "C", & ALT. SCHEDULE "D" \$ -

TOTAL --- SCHEDULES "A" (with Alt. 4-A), "B", "C", & ALT. SCHEDULE "D" \$ -

ABBREVIATIONS

ADJ	ADJUST
ADS	ADVANCE DRAINAGE SYSTEM
ARV	AIR RELEASE VALVE
BC	BAR AND CAP
BOW	BACK OF WALK
BVCE	BEGINNING VERTICAL CURVE ELEV.
BVCS	BEGINNING VERTICAL CURVE STATION
CB	CATCH BASIN
CBL	CABLE
CH	CHORD BEARING
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
COR.	SECTION CORNER
D	DELTA ANGLE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EG	EXISTING GRADE
ELEV	ELEVATION
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
EVCE	END VERTICAL CURVE ELEV.
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTICS
FT	FOOT
GB	GRADE BREAK
HC	HANDICAP
HDPE	HIGH DENSITY POLY ETHYLENE
HP	HIGH POINT
INV.	INVERT
IRR	IRRIGATION
L.F.	LINEAR FEET
LIP	LIP OF CURB
LP	LOW POINT
LT.	LEFT
MAX.	MAXIMUM
MH	MANHOLE
MIN.	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
OC	ON CENTER
OHP	OVER HEAD POWER
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
ROW	RIGHT OF WAY
RT.	RIGHT
S	SEWER
SD	STORM DRAIN
SER	SOUTH END RADIUS
SSMH	SEWER MANHOLE
STA	STATION
STD	STANDARD
SW	SECONDARY WATER
TBC	TOP BACK OF CURB
TOA	TOP OF ASPHALT
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
UG	UNDER GROUND POWER
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
WM	WATER METER
WV	WATER VALVE

IDENTIFICATION SYSTEM



LEGEND AND SYMBOLS

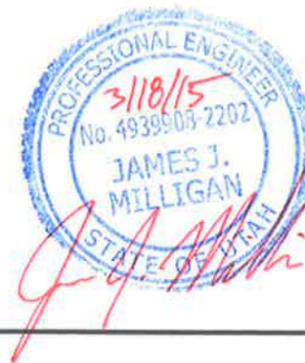
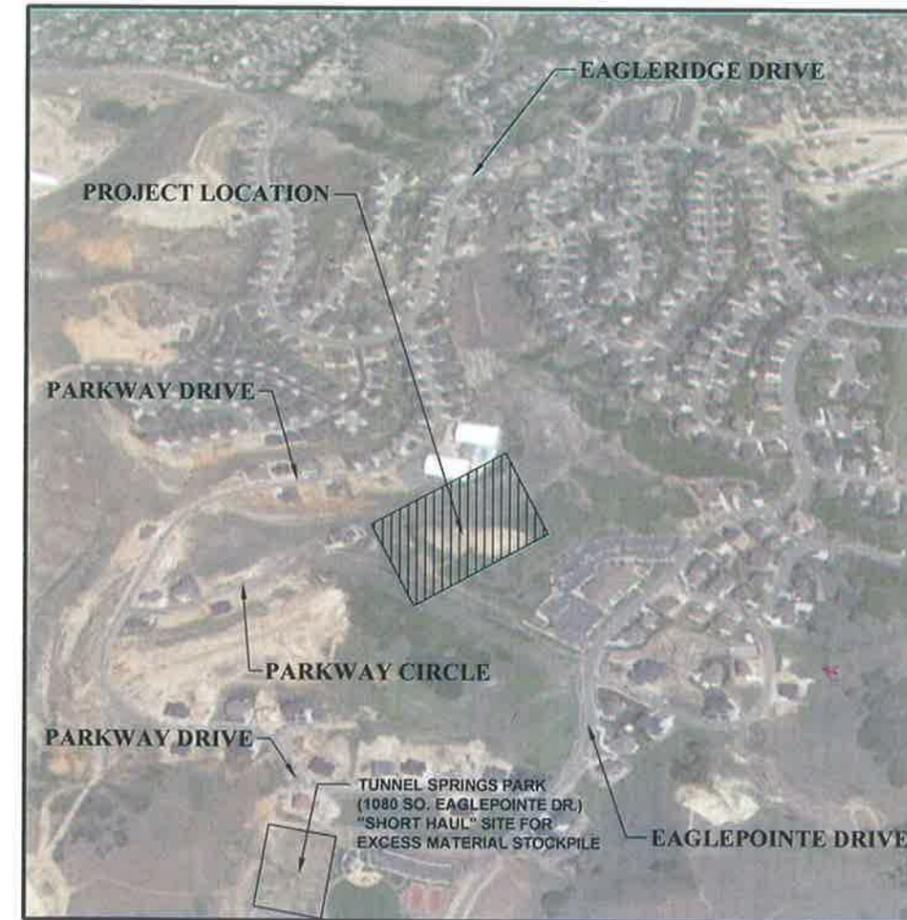
SECTION CORNER & LINE (FOUND)	SANITARY SEWER MANHOLE & PIPE	AIR RELIEF VALVE
BOUNDARY/PHASE LINE	STORM DRAIN CLEAN OUT & PIPE	TELE-MH
ADJACENT PL or LOT LINES	CATCH BASIN	GAS-MH
RIGHT-OF-WAY LINE	4' COMBO BOX	ELEC MH
CENTERLINE of ROAD	4' INLET	POWERPOLE
EASEMENT LINE	MANHOLE & CULINARY WATER LINE	GUY WIRE
CURB & GUTTER	WATER VALVE	STREET SIGN
= EDGE OF ASPHALT	= PROPOSED FIRE HYDRANT	TELE-RISE
FENCE	POWER P	TELE-VAULT
LOT LINE	STREET LIGHT	UTIL-POLE
DAYLIGHT- CUT	GAS LINE & MANHOLE	SEWER TAG
DAYLIGHT- FILL	TELEPHONE LINE	SD-TAG
PROPOSED INDEX CONTOUR	CABLE TELEVISION LINE	SPOT ELEVATION
PROPOSED INTERMEDIATE CONTOUR	DRAINAGE / DITCH CENTERLINE	EXISTING ELEVATION
EXISTING INDEX CONTOUR	IRRIGATION LINE	PROPOSED ELEVATION
EXISTING INTERMEDIATE CONTOUR		PROPOSED ASPHALT
		PROPOSED CONCRETE

*NOTE: ALL EXISTING FEATURES WILL BE IN A SHADED LINE

SHEET INDEX

	COVER SHEET
G.101	INDEX AND LEGEND
G.102	GENERAL NOTES / UDOT NOTES
C.101	EXISTING SITE PLAN
C.102	PROPOSED GRADING PLAN ALT. 1
C.103	PROPOSED DRAINAGE AND LOWER UTILITIES
C.104	PROPOSED UPPER UTILITY RELOCATION AND DEMOLITION PLAN
C.301	PROFILE WALL 1:1 (1)
C.302	PROFILE WALL 1:1 (2)
C.303	PROFILE WALL 1:1 (3)
C.304	PROFILE PARKING LOT (1)
C.305	PROFILE PARKING LOT (2)
C.306	PROFILE PARKING LOT (3)
C.307	PROFILE TENNIS COURT (1)
C.308	PROFILE TENNIS COURT (2)
C.309	PROFILE EVANS PROPERTY
C.310	PROFILE STORM DRAIN
W.101	WALL PROFILE
W.102	WALL PROFILE
D.101	DETAILS
D.102	DETAILS
D.103	DETAILS
D.104	DETAILS
D.105	DETAILS
D.106	DETAILS
D.107	DETAILS
ER.101	SWPP PLAN
ER.102	BMP DETAILS

LOCATION MAP



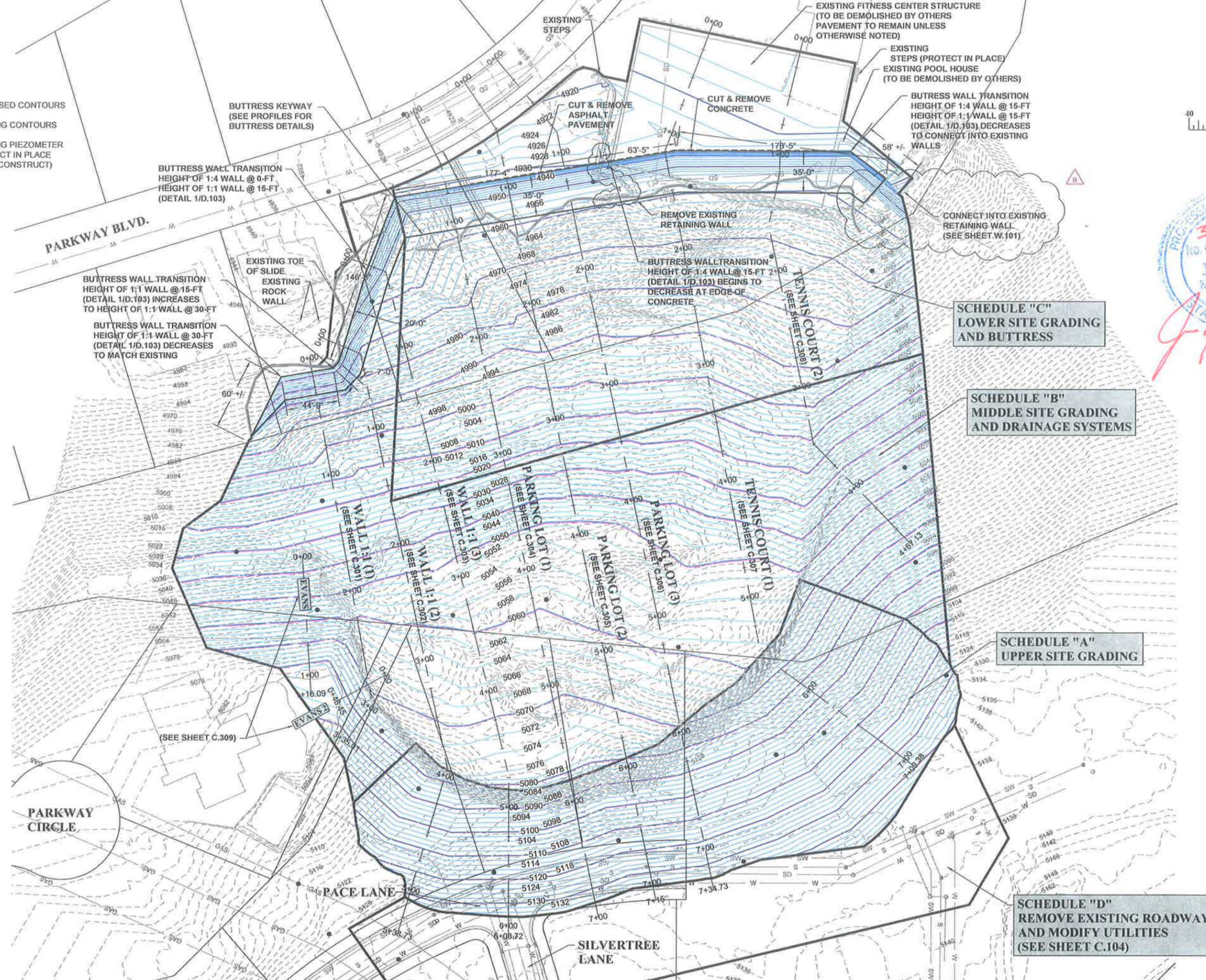
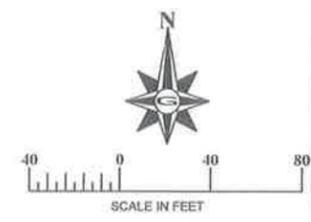
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DESIGNED/DRAWN BY	AL	
CHECKED	APPROVED	
REVISIONS		
REV. DATE	BY	COMMENTS
1		
2		
3		
4		
5		
6		

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

INDEX AND LEGEND
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

LEGEND

- PROPOSED CONTOURS
- - - EXISTING CONTOURS
- EXISTING PIEZOMETER (PROTECT IN PLACE OR RE-CONSTRUCT)



PARKWAY BLVD.

BUTTRISS WALL TRANSITION HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103) INCREASES TO HEIGHT OF 1:1 WALL @ 30-FT

BUTTRISS WALL TRANSITION HEIGHT OF 1:1 WALL @ 30-FT (DETAIL 1/D.103) DECREASES TO MATCH EXISTING

BUTTRISS KEYWAY (SEE PROFILES FOR BUTTRISS DETAILS)

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 0-FT HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103)

EXISTING TOE OF SLIDE EXISTING ROCK WALL

EXISTING STEPS

CUT & REMOVE ASPHALT PAVEMENT

CUT & REMOVE CONCRETE

EXISTING FITNESS CENTER STRUCTURE (TO BE DEMOLISHED BY OTHERS PAVEMENT TO REMAIN UNLESS OTHERWISE NOTED)

EXISTING STEPS (PROTECT IN PLACE) EXISTING POOL HOUSE (TO BE DEMOLISHED BY OTHERS)

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 15-FT HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103) DECREASES TO CONNECT INTO EXISTING WALLS

CONNECT INTO EXISTING RETAINING WALL (SEE SHEET W.101)

REMOVE EXISTING RETAINING WALL

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 15-FT (DETAIL 1/D.103) BEGINS TO DECREASE AT EDGE OF CONCRETE

SCHEDULE "C" LOWER SITE GRADING AND BUTTRISS

SCHEDULE "B" MIDDLE SITE GRADING AND DRAINAGE SYSTEMS

SCHEDULE "A" UPPER SITE GRADING

SCHEDULE "D" REMOVE EXISTING ROADWAY AND MODIFY UTILITIES (SEE SHEET C.104)

PARKWAY CIRCLE

PACE LANE

SILVERTREE LANE

TENNIS COURT 2
(SEE SHEET C.308)

TENNIS COURT 1
(SEE SHEET C.307)

PARKING LOT (1)
(SEE SHEET C.304)

PARKING LOT (2)
(SEE SHEET C.305)

PARKING LOT (3)
(SEE SHEET C.306)

WALL 1:1 (1)
(SEE SHEET C.301)

WALL 1:1 (2)
(SEE SHEET C.302)

WALL 1:1 (3)
(SEE SHEET C.303)

EVANS 1

EVANS 2



CONSULTING ENGINEERS AND SURVEYORS
 JAMES J. MELLIGAN
 LICENSE NO. 49380032232
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GeoStrata
 Engineering & Geosciences
 1000 W. 1000 S.
 SALT LAKE CITY, UT 84119
 TEL: 313.1111
 FAX: 313.1111

CITY OF NORTH SALT LAKE
 ENGINEER

NO.	DATE	BY	REVISIONS
1	FEBRUARY 2015	JAM	ISSUE FOR PERMITS
2			REVISE BUTTRISS WALL, TIE IN EAST END

DATE	FEBRUARY 2015
DESIGNER	JAM
CHECKED	AL
APPROVED	

PROPOSED GRADING PLAN
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

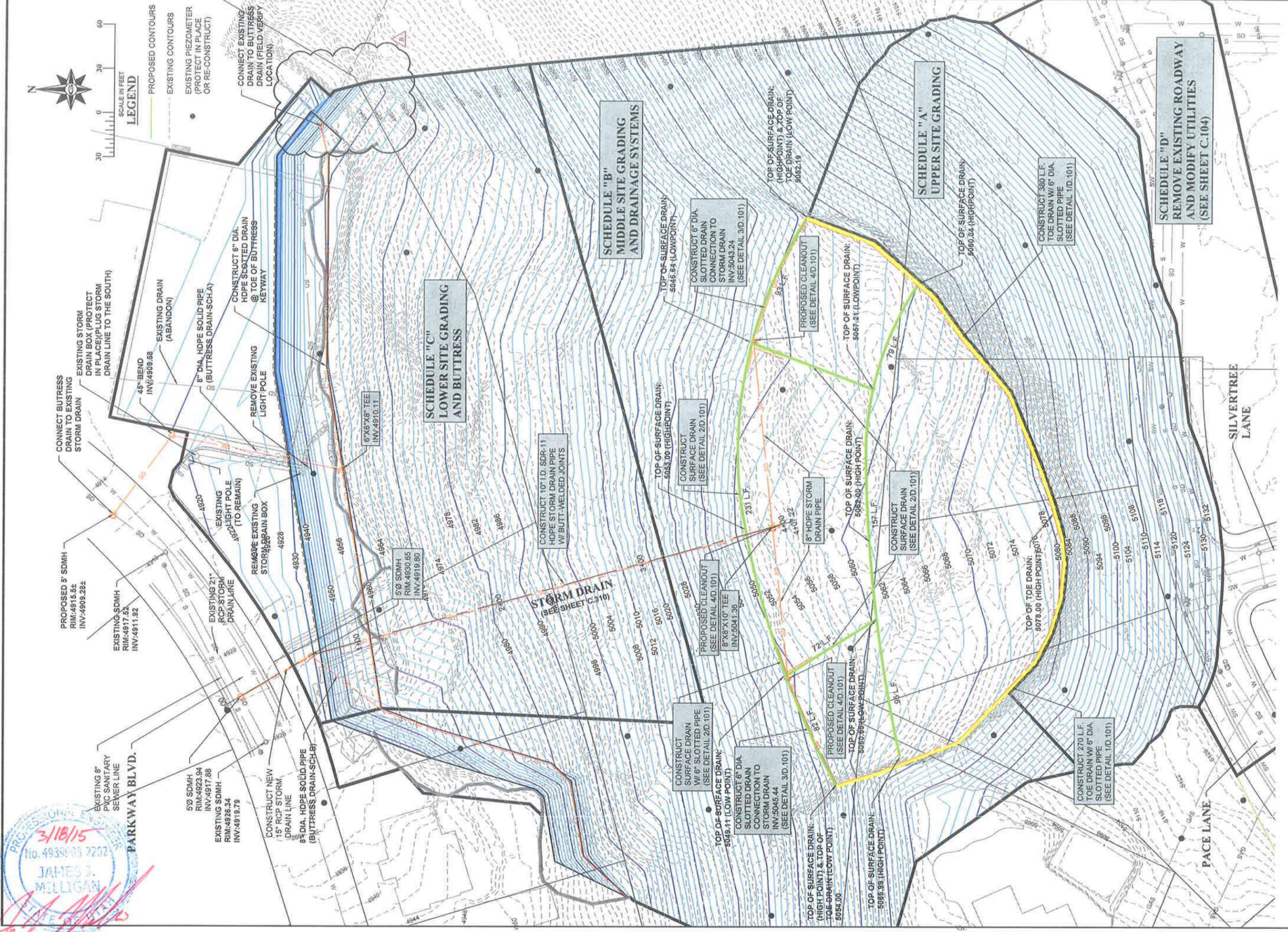
REVISION **B**
 PROJ # **GEO.021**
C.102



SCALE IN FEET

LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- EXISTING PIEZOMETER (PROTECT IN PLACE OR RE-CONSTRUCT)
- CONNECT EXISTING DRAIN TO BUTTRESS DRAIN (FIELD VERIFY LOCATION)



PROPOSED 5" SDMH
RIM: 4915.82
INV: 4909.282

EXISTING 5" SDMH
RIM: 4917.52
INV: 4911.92

EXISTING 21" RCP STORM DRAIN LINE

EXISTING 8" PVC SANITARY SEWER LINE

3/18/15
No. 4939/03 2202
JAMES J. MILLIGAN
Professional Engineer
Utah License No. 10000

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Engineering & Geoscientists
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MIDWINTER, UTAH 84049
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FAX: 435.734.1112



REVISION	DATE	BY	DESCRIPTION
1	FEBRUARY 2015	AL	REVISE BUTTRESS WALL TIE IN @ EAST END
2			
3			
4			
5			

DATE: FEBRUARY 2015
DRAWING NAME: C-103 DRAINAGE
DESIGNED/DRAWN BY: AL
CHECKED: APPROVED

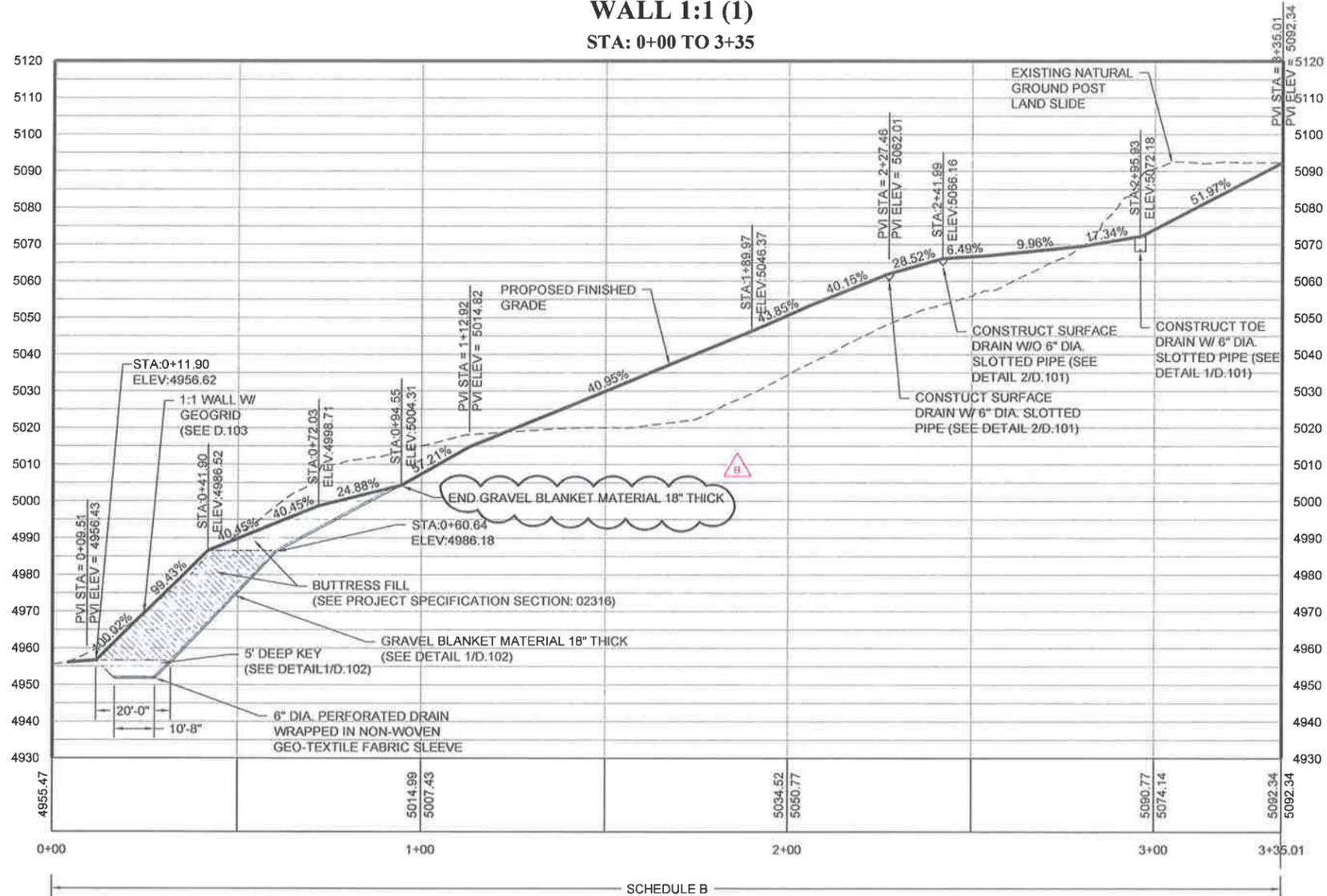
PROPOSED DRAINAGE AND UTILITIES
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: B

PROJ # GEO.024

C.103

WALL 1:1 (1)
STA: 0+00 TO 3+35



SCHEDULE B

PROFESSIONAL ENGINEER
 3/18/15
 No. 49391 13 7202
 JAMES M. MILLER
 STATE OF UTAH



REVISIONS
REVISION: B

DATE: FEBRUARY 2015	CHECKED: APPROVED
DESIGNING NAME: C.301 PROFILE	APPROVED: [Signature]
DESIGNED/DRAWN BY: AL	

PROFILE WALL 1:1 (1)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

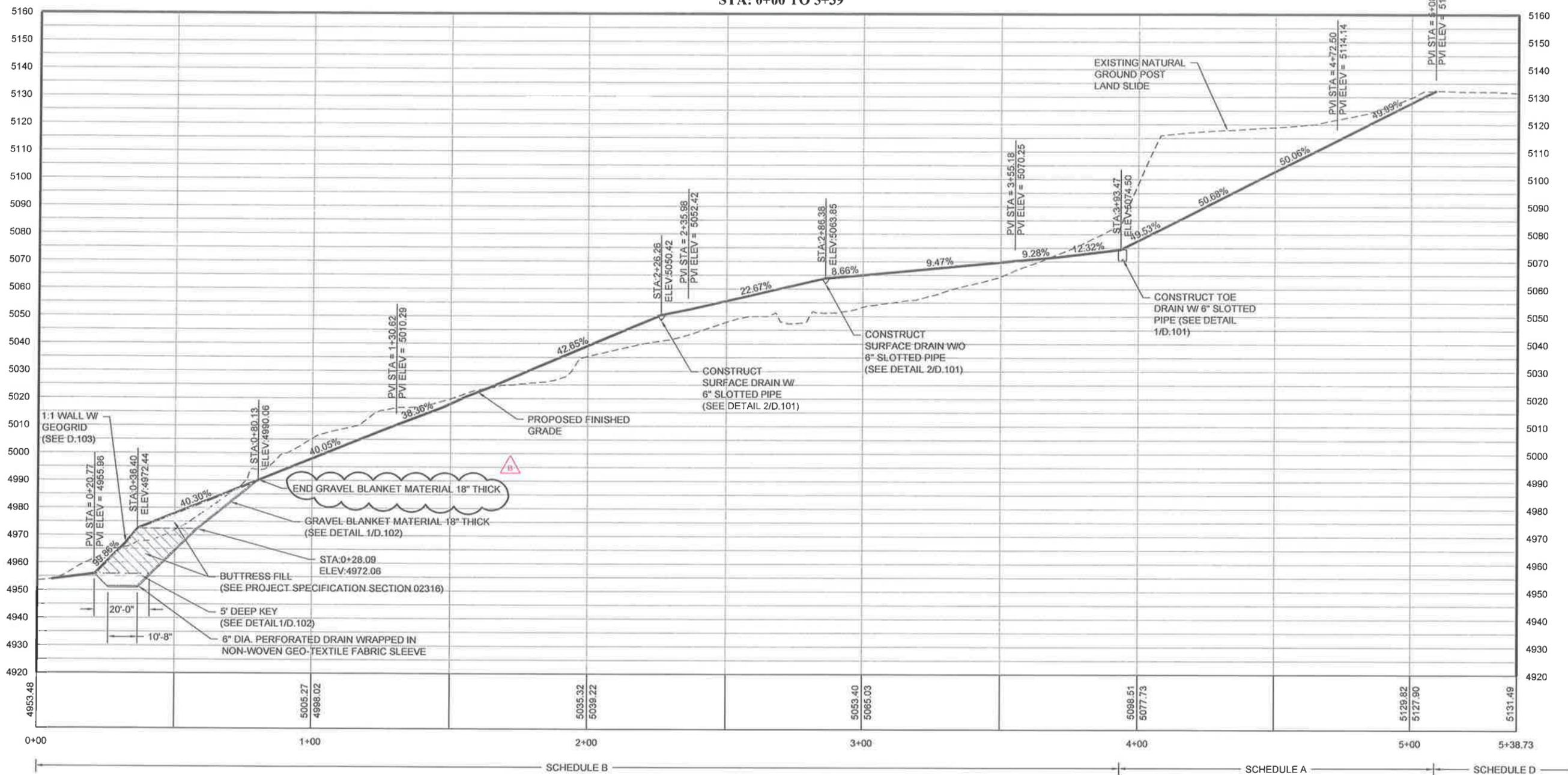
REVISION: B
 PROJ # GEO.021
C.301

SCALE:
 HOR: 1" = 20'
 VER: 1" = 20'



James J. Melton

WALL 1:1 (2)
STA: 0+00 TO 5+39



DATE	REVISIONS
FEBRUARY 2015	REVISED BY: [Name]
	BY: [Name]
	FOR: [Name]
	DESIGNED/DRAWN BY: [Name]
	CHECKED: [Name]
	APPROVED: [Name]

SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR PART SIZE SHEETS

PROFILE WALL 1:1 (2)
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: **B**
PROJ # **GEO.021**
C.302

SCALE:
HOR: 1" = 20'
VER: 1" = 20'

PROFESSIONAL ENGINEER
 3/10/15
 No. 49384163-7227
 JAKE MILLER
 STATE OF UTAH

CONSULTING ENGINEERS AND SURVEYORS
 GILSON
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 DRAPER, UT 84020
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 Salt Lake City, UT 84143
 www.geostrata.com



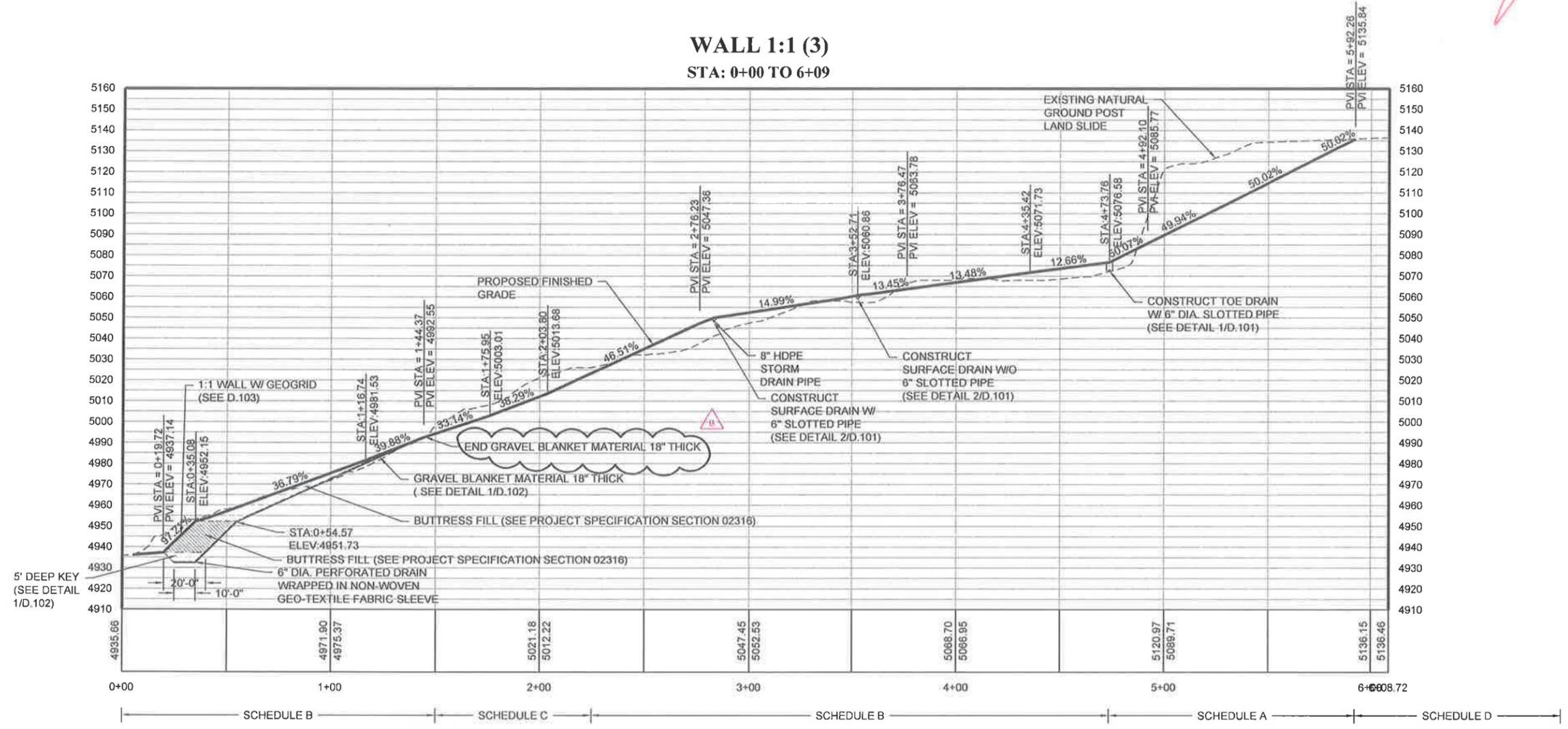
DATE	REVISIONS
FEBRUARY 2015	REVISED BY COMMENTS
C-303	BY 3/10/15 JLM ADD NOTE FOR END OF GRAVEL BLANKET

DATE	APPROVED
FEBRUARY 2015	AL
DRAWING NAME	CHECKED
C-303	APPROVED
PROFILE	BY
	AL
DESIGNED/DRAWN BY	

PROFILE WALL 1:1 (3)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION **B**
 PROJ # **GEO.021**
C.303

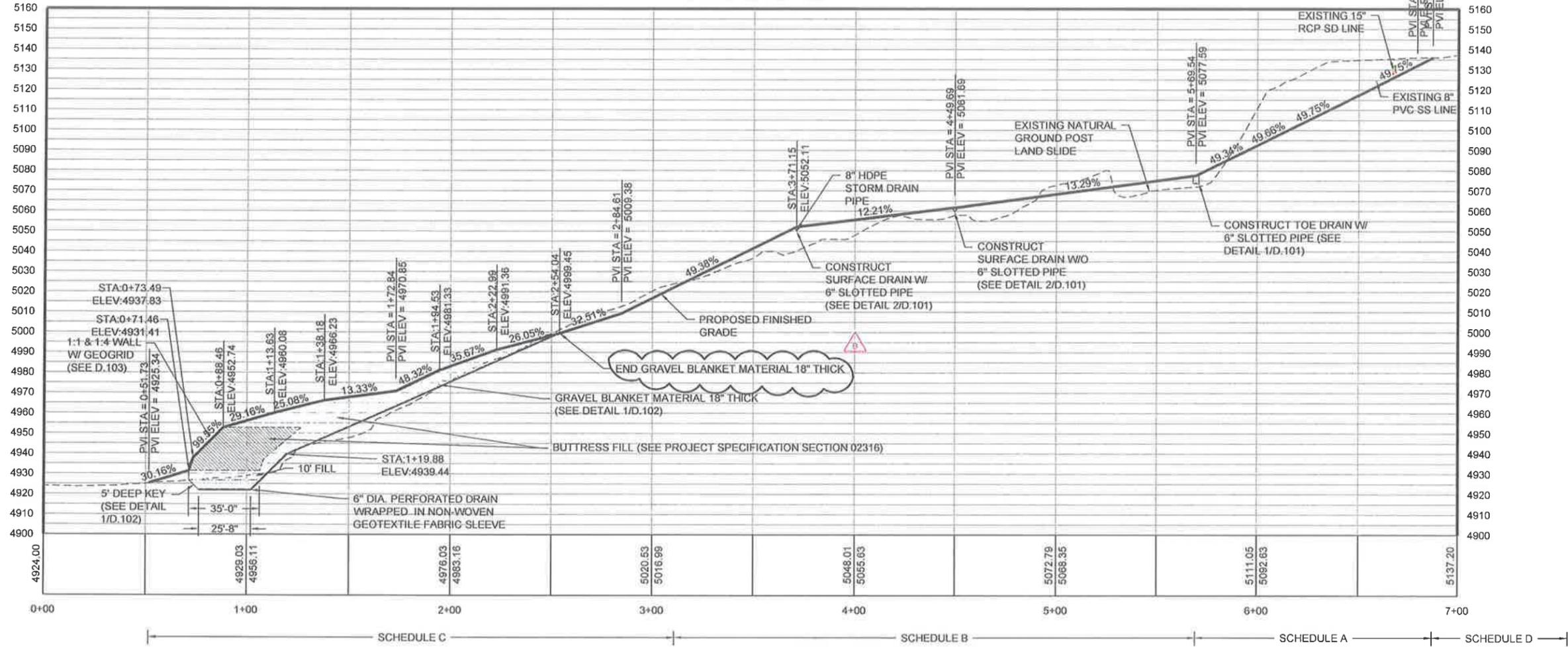
WALL 1:1 (3)
 STA: 0+00 TO 6+00



SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'

3/18/15
 JAMES L. MULLISAN
 PROFESSIONAL ENGINEER
 No. 4835073 7222

PARKING LOT (1)
 STA: 0+00 TO 7+00



DATE	REVISIONS
FEBRUARY 2015	REVISED BY: [blank]
	BY: [blank]
	DATE: [blank]
	DESCRIPTION: [blank]

DATE: FEBRUARY 2015	DESIGNED/DRAWN BY: AL
DESIGNED/DRAWN BY: AL	CHECKED: [blank]
CHECKED: [blank]	APPROVED: [blank]

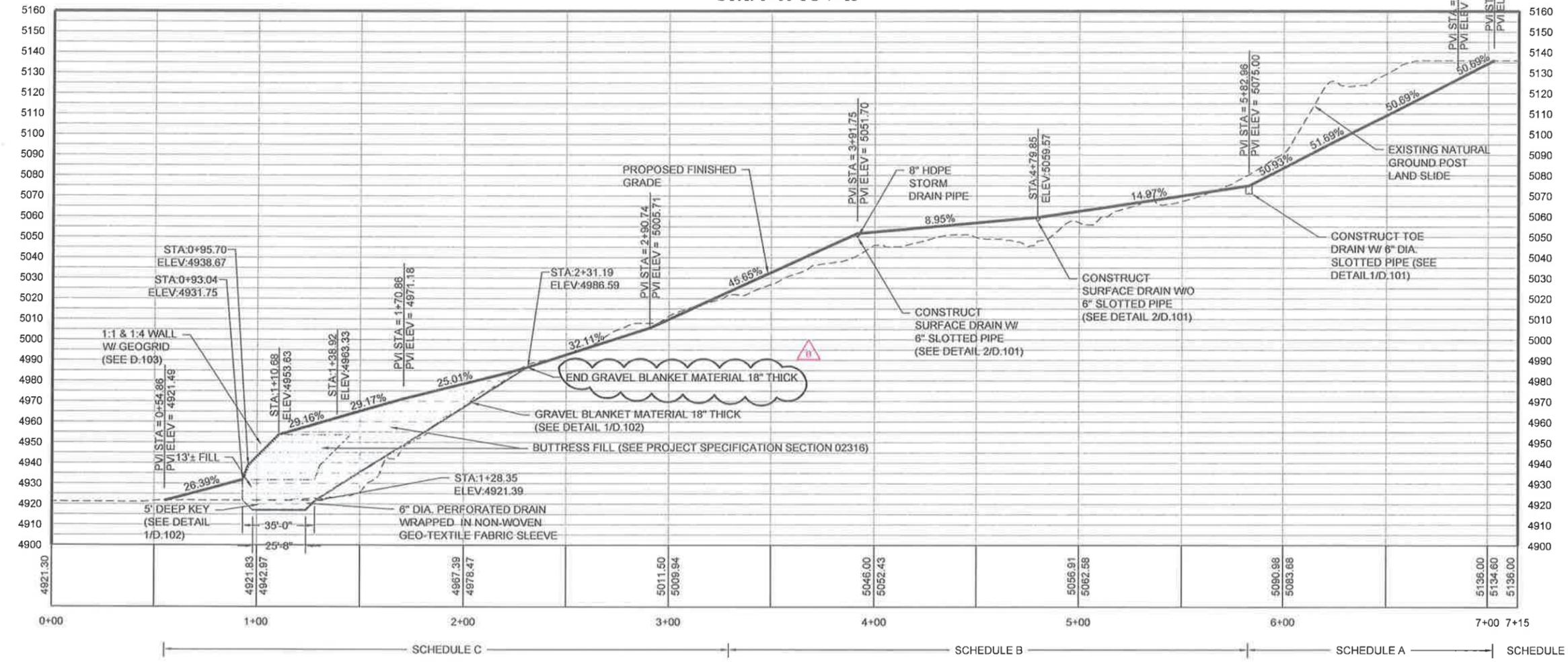
PROFILE PARKING LOT (1)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **B**
 PROJ # **GE0.021**
C.304

SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'

PROFESSIONAL ENGINEER
 No. 49388-017702
 JAMES A. MELLESON
 2/18/15

PARKING LOT (2)
 STA: 0+00 TO 7+15



CONSULTING ENGINEERS AND SURVEYORS
 1601 SOUTH 400 EAST
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GILSON
 ENGINEERING, INC.

GeoStrata
 Engineering & Geosciences
 1100 S. 1000 EAST
 SUITE 100
 SALT LAKE CITY, UT 84143
 WWW.GEOSTRATA.COM



REV.	DATE	BY	COMMENTS
1	FEBRUARY 2015	AL	ADD NOTE FOR END OF GRAVEL BLANKET

DATE: FEBRUARY 2015	CHECKED: AL	APPROVED: AL
DRAWING NAME: PROFILE		
DESIGNED/DRAWN BY: AL		

PROFILE PARKING LOT (2)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **B**
 PROJ. # **GEO.021**
C.305

SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'



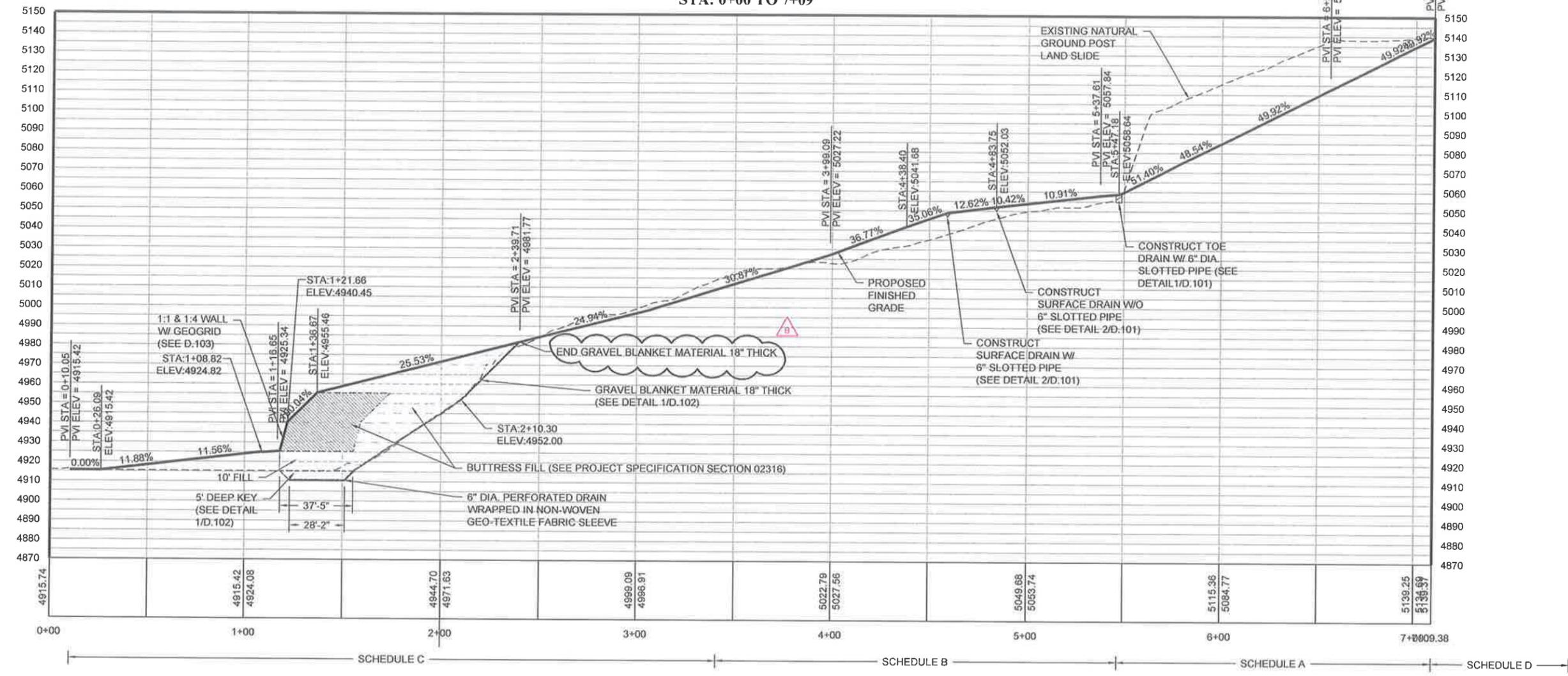
DATE	REVISIONS
FEBRUARY 2015	REVISED BY COMMENTS
C-307	REVISED BY COMMENTS
PROFILE	REVISED BY COMMENTS
DESIGNED/DRAWN BY	REVISED BY COMMENTS
JAL	REVISED BY COMMENTS
CHECKED	REVISED BY COMMENTS
APPROVED	REVISED BY COMMENTS

DATE	FEBRUARY 2015
DRAWING NAME	C-307
PROFILE	PROFILE
DESIGNED/DRAWN BY	JAL
CHECKED	
APPROVED	

PROFILE TENNIS COURT (1)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **B**
 PROJ # **GEO.021**
C.307

TENNIS COURT (1)
 STA: 0+00 TO 7+09



SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'

3/18/15
 PROFESSIONAL ENGINEER
 No. 49351
 JAMES GILSON
 CONSULTING ENGINEERS AND SURVEYORS

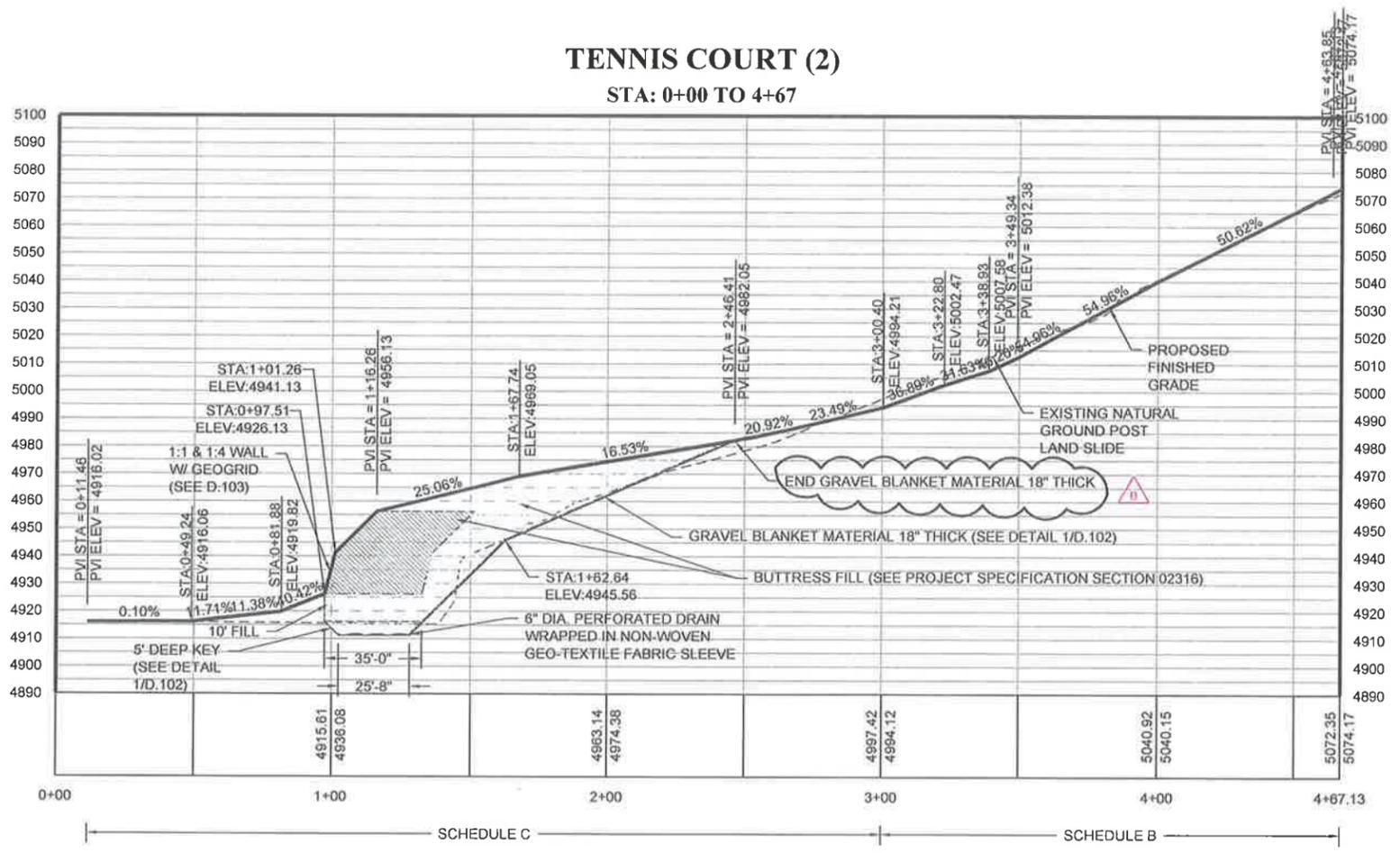


DATE	REVISIONS
FEBRUARY 2015	
DESIGNED BY	REVISION
PERSELE	
DESIGNED/DRAWN BY	
AL	
CHECKED	APPROVED

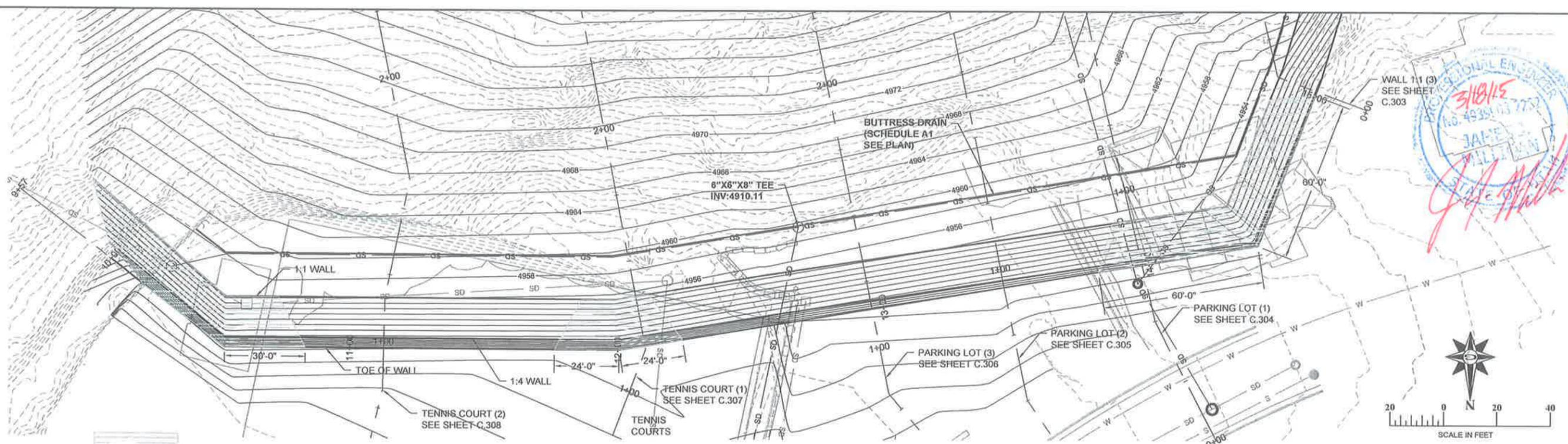
PROFILE TENNIS COURT (2)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISOR: **B**
 PROJ # **GEO.021**
C.308

TENNIS COURT (2)
 STA: 0+00 TO 4+67



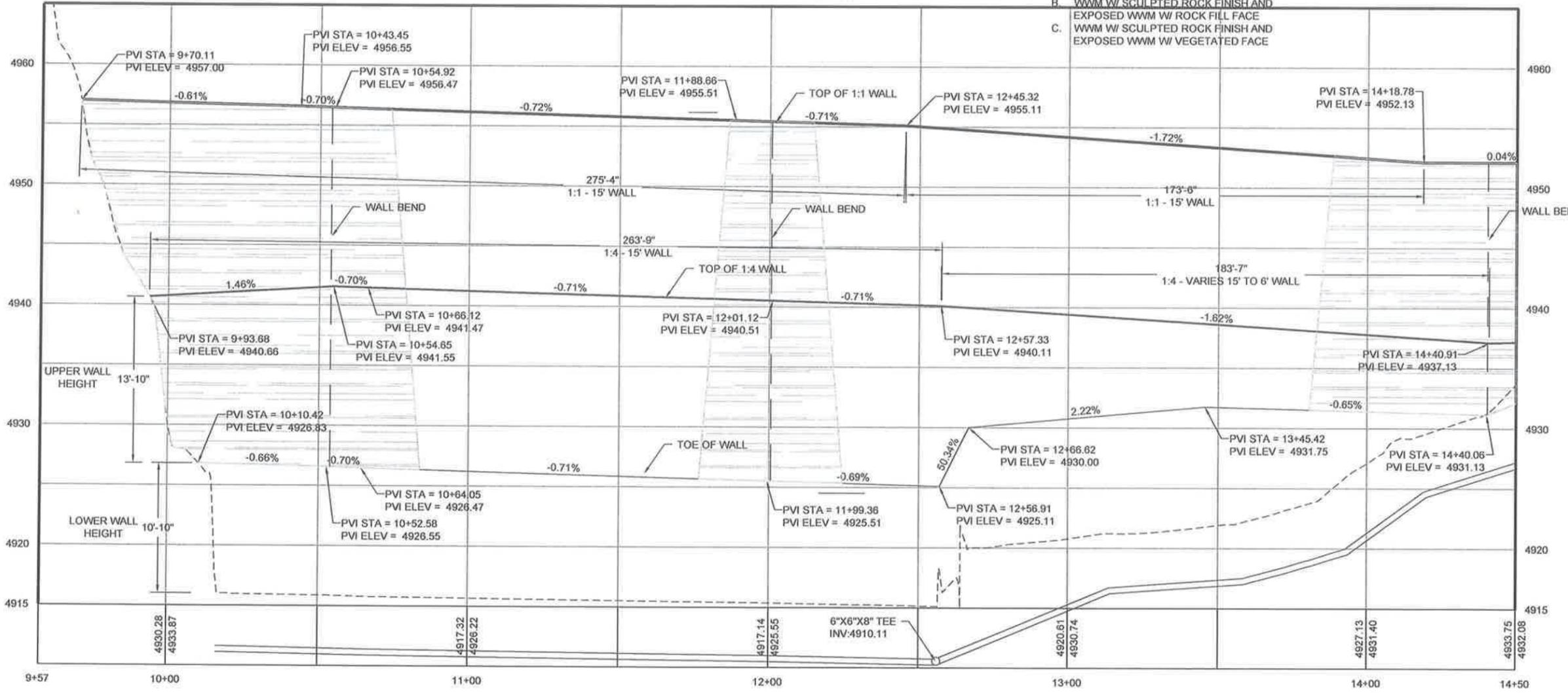
SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'



WWM W SCULPTED ROCK FINISH OPTION

WALL 1
STA: 9+57 TO 14+50

- MSE WALL FINISH OPTIONS:
- A. GUNITE (SHOTCRETE) SMOOTH FINISH
 - B. WWM W SCULPTED ROCK FINISH AND EXPOSED WWM W ROCK FILL FACE
 - C. WWM W SCULPTED ROCK FINISH AND EXPOSED WWM W VEGETATED FACE



SEE SHEET W.102

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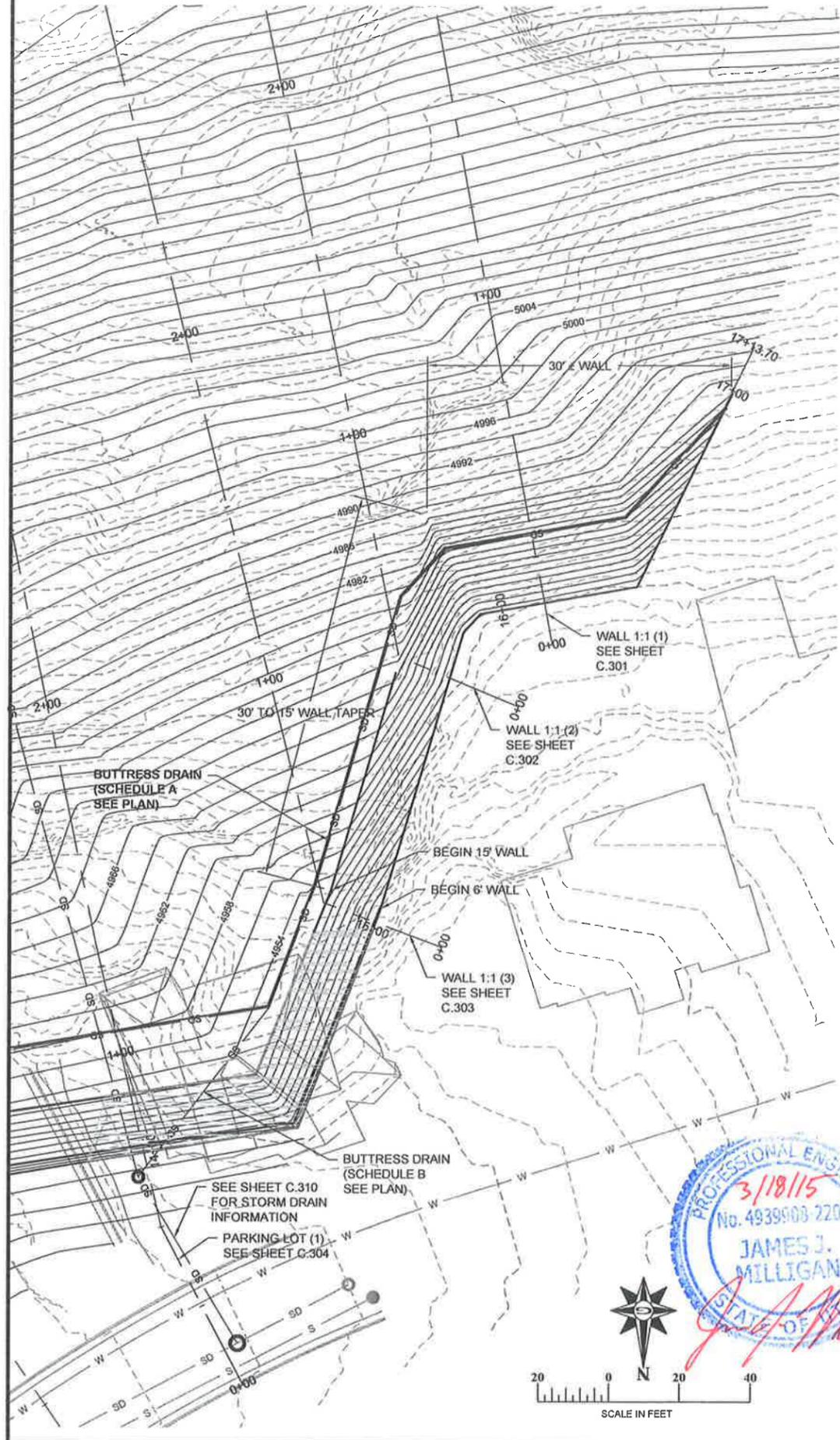


DATE	REVISIONS
FEBRUARY 2015	REVISED TO ADD WALL FINISH OPTIONS & REVERSE TIE IN
W.101	DESIGNED/DRAWN BY: A.L.
	CHECKED: APPROVED:

WALL PROFILE STA: 09+80 TO 14+50
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: **B**
PROJ: **GE0.021**
W.101

SCALE:
HOR: 1" = 20'
VER: 1" = 5'

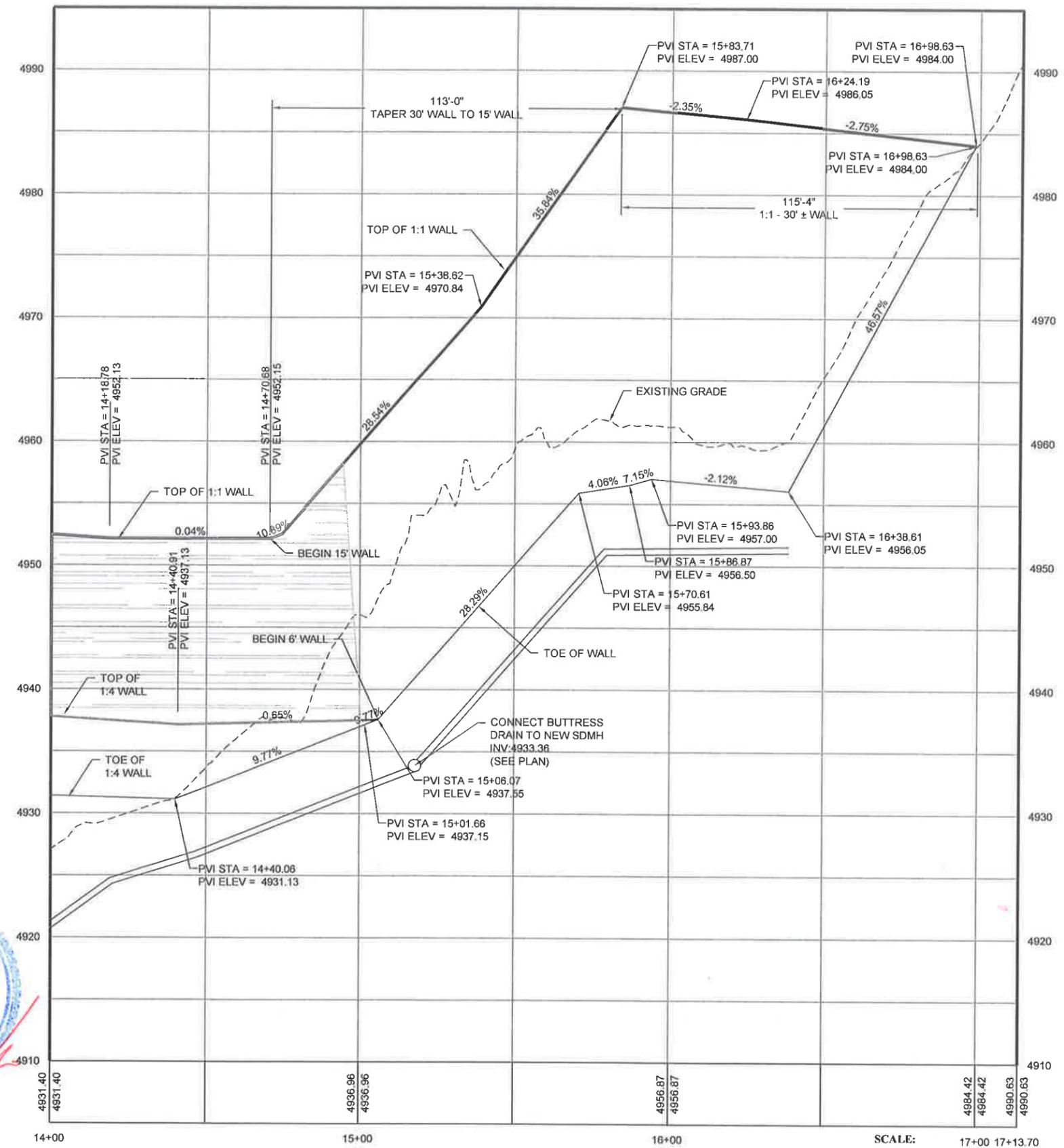


SEE SHEET W.101

PROFESSIONAL ENGINEER
 3/18/15
 No. 4939908 2202
 JAMES J. MILLIGAN
 STATE OF UTAH

WWW W/ SCULPTED ROCK FINISH OPTION

WALL 1
 STA: 14+00 TO 17+14



SCALE:
 HOR: 1" = 20'
 VER: 1" = 5'

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CITY OF NORTH SALT LAKE & UTAH

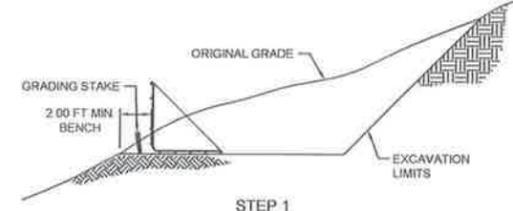
DATE: FEBRUARY 2015
 DRAWING NAME: WALL
 DESIGNER/DRAWN BY: AL
 CHECKED: APPROVED

WALL PROFILE STA: 14+00 TO 17+14
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: B
 PROJ # GEO.021
W.102

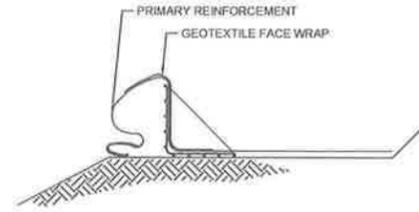
PROFESSIONAL ENGINEER
 3/18/15
 No. 49384
 JAMES MILLER
 STATE OF UTAH
J. A. Miller

- EXCAVATE FOR LEVEL BASE TO A LENGTH ADEQUATE FOR REINFORCEMENT EMBEDMENT
- SET GRADING STAKES AT A 0.50 FT OFFSET TO FACILITATE PROPER BASKET ALIGNMENT
- EMBED BOTTOM BASKET AT FACE OF WALL AS SHOWN ON WALL PROFILE



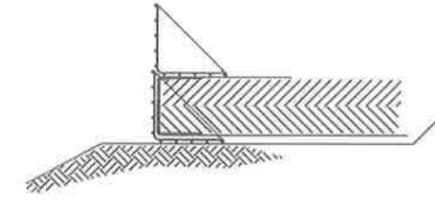
STEP 1

- PLACE PRIMARY SOIL REINFORCEMENT AT ELEVATIONS AS SHOWN IN PROFILE DRAWING
- DRAPE REINFORCEMENT OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (4.00 FT MIN)
- PLACE GEOTEXTILE (MIRAFI 140N) FACING WRAP
- DRAPE GEOTEXTILE OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (1.00 FT MIN)
- INSTALL STRUTS AT REQUIRED SPACING (2-FT MAX)



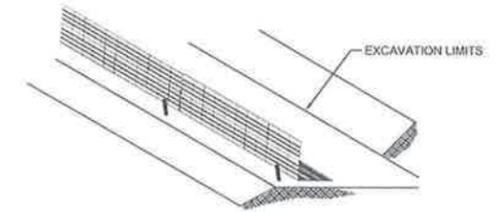
STEP 3

- PULL GEOTEXTILE WRAP AND SOIL REINFORCEMENT OVER COMPACTED FILL AND ANCHOR WITH SOIL
- SLIDE THE NEXT BASKET BACK AGAINST THE PRONGS OF THE LOWER BASKET USING RUNNING BOND INSTALLATION (STAGGERED)
- INSTALL SECOND COURSE OF WELDED WIRE FORM



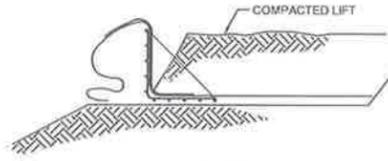
STEP 5

- FOR THE FIRST COURSE OF THE WALL, ALIGN BASKETS WITHOUT SPACES
- INSTALL STRUTS AT ABOUT 2.00 FT SPACING



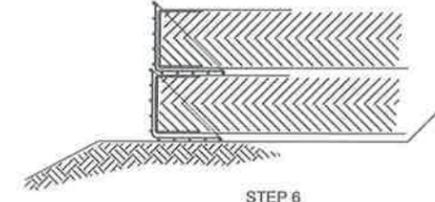
STEP 2

- BACKFILL CAREFULLY TO ABOUT 1" - 2" ABOVE THE TOP HORIZONTAL BASKET WIRE OR AS REQUIRED BY SPECIFICATION
- COMPACT TO REQUIRED DENSITY



STEP 4

- REPEAT STEPS 2 THRU 5 UNTIL DESIRED HEIGHT OF WALL IS REACHED



STEP 6

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CITY OF NORTH SALT LAKE & UTILITY

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015
 DRAWING NAME: 2.1. ACAD PLANSET
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED

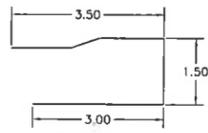
DETAILS
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **A**

PROJ # **GEO.021**

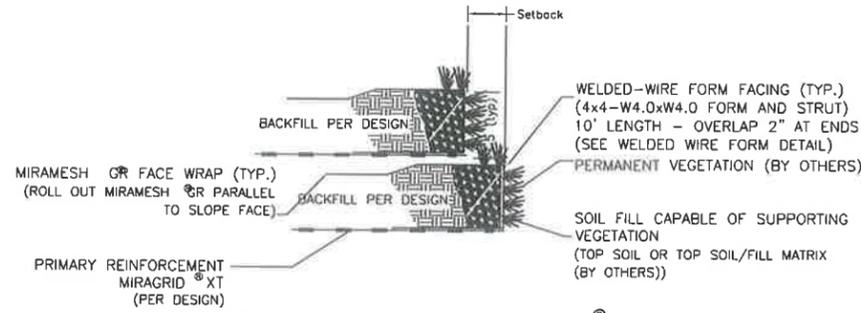
D.106

Note:
MIRAMESH® GR UV RESISTANCE RATING OF 99% AT 500 HOURS BASED ON ASTM D4355.
LIFE EXPECTANCY - 75 TO 100 YEARS

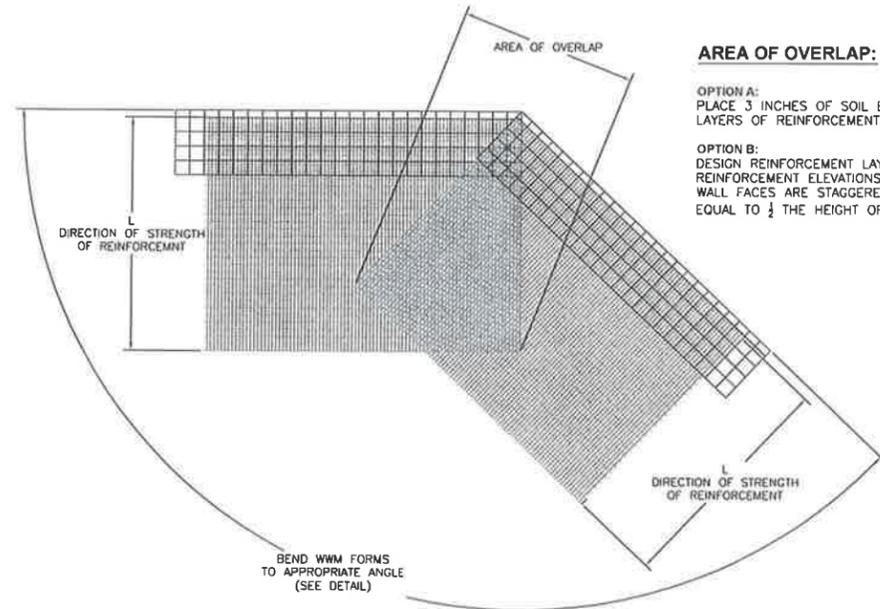


MIRAMESH® GR - DIMENSION DETAIL

Setback (inches)	Angle(deg) from horiz	Slope
3	81	1H:6V
4	77	
5	74	
6	72	1H:3V
7	69	
8	66	
9	63	1H:2V
10	61	
12	56	
15	50	
18	45	1H:1V



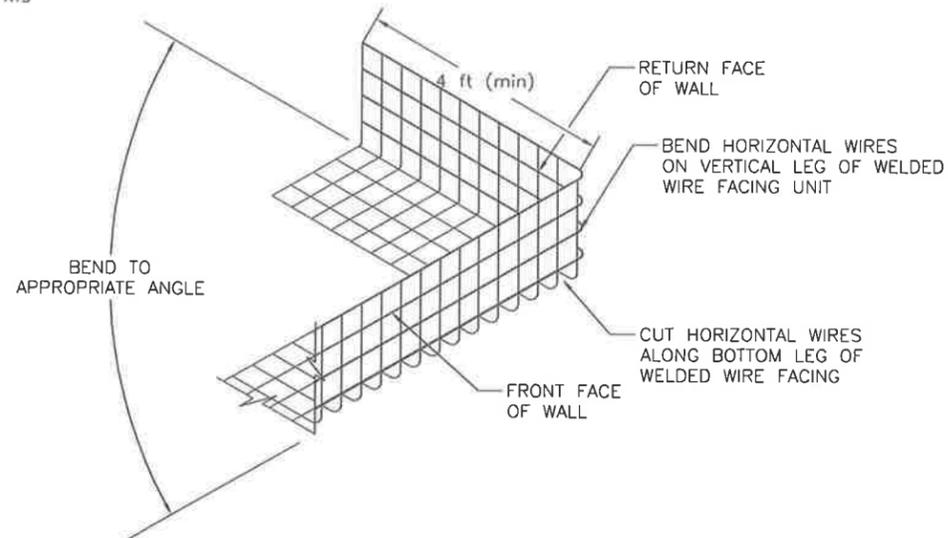
FACING DETAIL - MIRAMESH® GR
NTS



AREA OF OVERLAP:

- OPTION A: PLACE 3 INCHES OF SOIL BETWEEN OVERLAPPING LAYERS OF REINFORCEMENT
- OPTION B: DESIGN REINFORCEMENT LAYOUT SUCH THAT REINFORCEMENT ELEVATIONS ALONG ADJACENT WALL FACES ARE STAGGERED BY A DISTANCE EQUAL TO 1/3 THE HEIGHT OF THE WWM FORM.

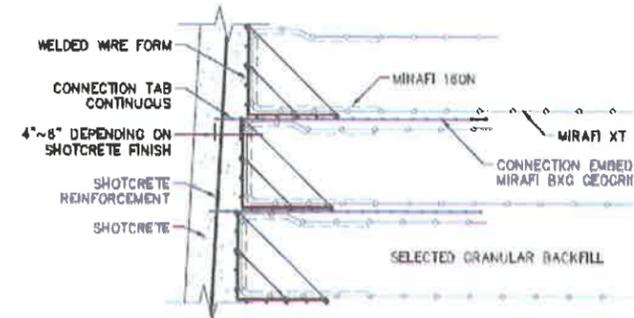
PLAN VIEW - OUSTSIDE CORNER DETAIL
NTS



FACING DETAIL - CORNER
NTS

TenCate Mirafi Wirewall with Shotcrete Face

Shotcrete Face Connection Detail



OPTION 1: REBAR REINFORCEMENT
INSTALL VERTICAL BAR THROUGH BXG GEOGRID OPENNING.

OPTION 2: WIRE MESH REINFORCEMENT
CUT BXG GEOGRID PERPENDICULAR TO WALL FACE AT A DESIGN SPACING ALLOWING BXG GEOGRID PASSING THROUGH WIRE MESH

WELDED WIRE AND SHOTCRETE FACING
CONCEPTUAL DETAILS



© 8/23/13



SAMPLE OF ROCK SCULPTING COLOR & FINISH



REV. DATE	BY	REVISIONS

DATE: FEBRUARY 2015	CHECKED: []	APPROVED: []
DRAWING NAME: 2.1. CAD PLANSET	DESIGNED BY: []	
DRAWN BY: []		

DETAILS
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: **A**
PROJ # **GEO.021**
D.107

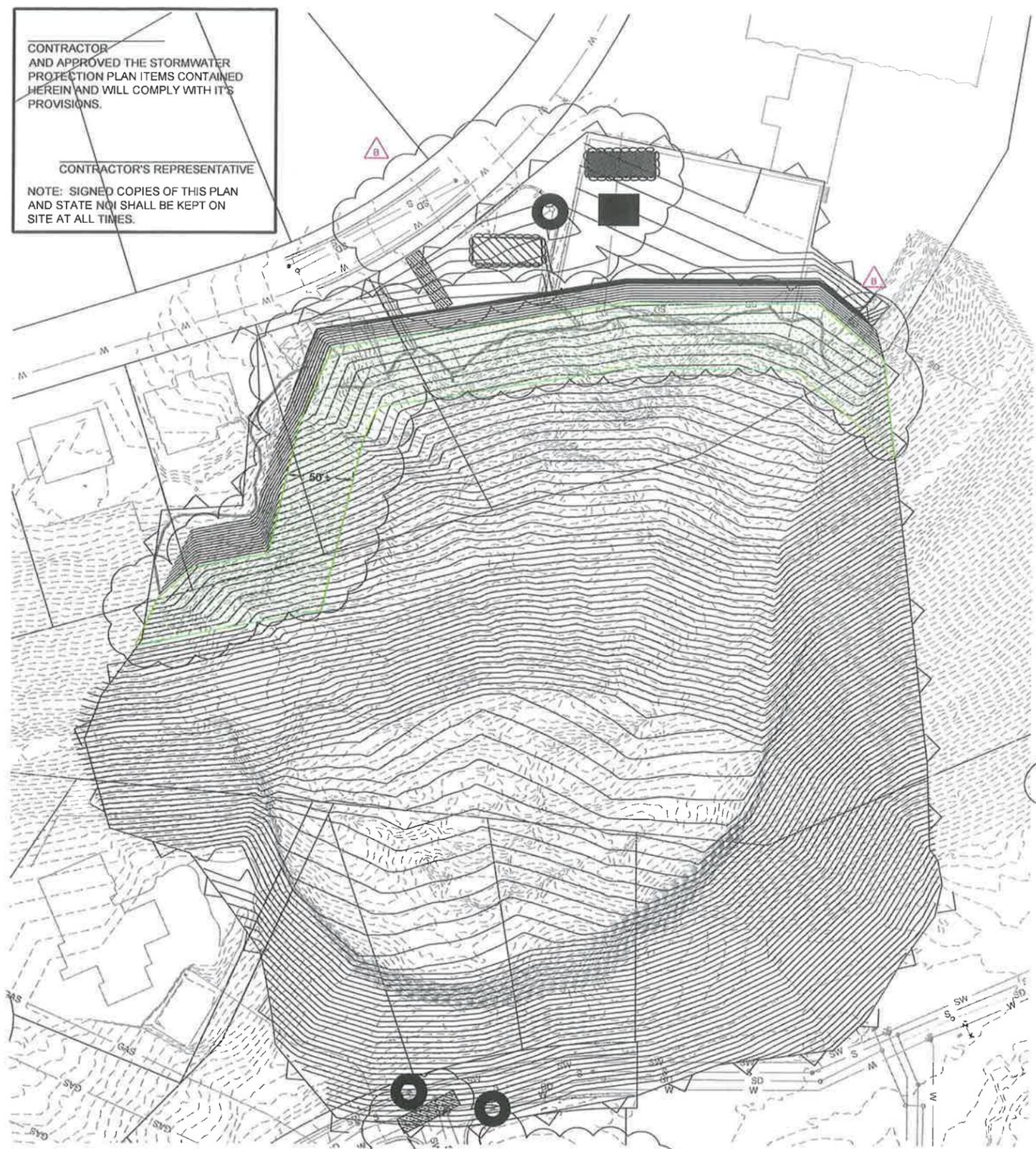
LEGEND

-  -BMP SILT FENCE ER.02
-  -BMP INSPECTION AND MAINTENANCE, BMP STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA ER.01-ER.02
-  -TOPSOIL STOCKPILE AREA (OR AS DIRECTED BY OWNER) BMP EARTH BERM BARRIER ER.01
-  -BMP MATERIALS STORAGE, BMP VEHICLE AND EQUIPMENT FUELING, BMP CONCRETE WASTE MANAGEMENT, BMP PORTABLE TOILETS, BMP EARTH BERM BARRIER ER.01-ER.02
-  -BMP DUST CONTROLS, BMP GRADING PRACTICES, BMP CONTAMINATED OR ERODEABLE SURFACE AREAS, REPOSITORY STOCKPILE AREA (OR AS DIRECTED BY OWNER), BMP EARTH BERM BARRIER ER.01-ER.02
-  -BMP INLET PROTECTION
-  -BMP EROSION CONTROL MAT (PLACED ALONG TOP OF WALL 50' WIDE +/-)

CONTRACTOR AND APPROVED THE STORMWATER PROTECTION PLAN ITEMS CONTAINED HEREIN AND WILL COMPLY WITH ITS PROVISIONS.

CONTRACTOR'S REPRESENTATIVE

NOTE: SIGNED COPIES OF THIS PLAN AND STATE NOI SHALL BE KEPT ON SITE AT ALL TIMES.



EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL FACILITIES SHOWN ON THE PLAN.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED. STREETS SHALL BE KEPT CLEAN OF DEBRIS FROM TRAFFIC FROM THE SITE.
3. CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL LOCATIONS WHERE VEHICLES WILL ENTER OR EXIT THE SITE. CONTROL FACILITIES WILL BE MAINTAINED WHILE CONSTRUCTION IS IN PROGRESS, MOVED WHEN NECESSARY, AND REMOVED WHEN THE SITE IS PAVED.
4. STORM DRAIN INLET PROTECTION DEVICES SHALL BE INSTALLED IMMEDIATELY UPON INDIVIDUAL INLETS BECOMING FUNCTIONAL.
5. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN AND THE STATE OF UTAH DISCHARGE PERMIT SYSTEM. GENERAL PERMIT FOR "STORM DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY" AND BECOME FAMILIAR WITH THEIR CONTENT.
6. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, ETC.) SHALL BE DISPOSED IN A MANNER THAT PREVENTS CONTACT WITH STORM WATER DISCHARGES FROM THE SITE.
7. FUGITIVE DUST AREAS SHALL BE CONTROLLED BY SPRAYING WATER ON THE DRY AREAS OF THE SITE. CONTRACTOR SHALL SUPPLY THE CITY WITH A DUST CONTROL PLAN AT THE TIME OF THE PRE-CONSTRUCTION MEETING.
8. NO RUBBISH, TRASH, GARBAGE OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
9. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) DUE TO GRADE CHANGES OR OTHER UNFORESEEN CONDITIONS DURING DEVELOPMENT OF THE PROJECT.
11. ALL INLETS SHALL HAVE TEMPORARY INLET CONTROL.
12. TEMPORARY SANITATION FACILITIES ARE REQUIRED.
13. CONTRACTOR SHALL COORDINATE WITH PUBLIC WORKS INSPECTOR ON ALL REQUESTS TO MODIFY OR MAKE CHANGES TO SWPPP/EROSION CONTROL PLAN.

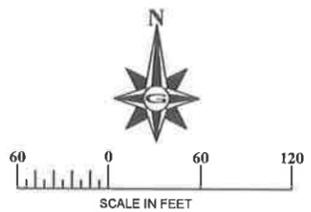
NOTES

- 1 - ALL PROPOSED AND EXISTING INLETS ARE TO BE PROTECTED. SEE BMP INLET PROTECTION C.55, BMP CATCH BASIN CLEANING, BMP INSPECTION AND MAINTENANCE FOR INLET PROTECTION DETAILS.
- 2 - EXISTING GROUND COVER = 50% SEE BMP PRESERVATION OF EXISTING VEGETATION.
- 3 - SEQUENCE OF CONSTRUCTION
 - PHASE I
 1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
 2. CONSTRUCT SILT FENCES ON THE SITE.
 3. CONSTRUCT SEDIMENTATION PONDS WHERE NEEDED PER DISCRETION OF CONTRACTOR. SIZE TO BE DETERMINED BY ENGINEER.
 4. HALT ALL ACTIVITIES AND CONTACT CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMP'S. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND DISTURBING CONTRACTORS BEFORE PRECEDING WITH CONSTRUCTION. PREPARE TEMPORARY PARKING AND STORAGE AREAS.
 5. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. STORM DRAIN WATER DURING CONSTRUCTION WILL BE LOCATED IN RETENTION POND.
 6. BEGIN GRADING THE SITE.
 - PHASE II
 1. MAINTAIN SILT FENCE, INLET PROTECTION AND STABILIZED CONSTRUCTION EXITS INSTALLED DURING PHASE #1.
 2. COMPLETE PERMANENT DETENTION POND CONSTRUCTION.
 3. BEGIN CONSTRUCTION OF UNDERGROUND UTILITIES.
 4. INSTALL INLET PROTECTION AT NEW STORM DRAIN INLETS, AS INSTALLED.
 5. INSTALL PERMANENT VEGETATION AND PLANT MATERIALS.
 6. REMOVE ALL TEMPORARY EROSION & SEDIMENTATION CONTROL DEVICES (ONLY AFTER FINAL STABILIZATION HAS BEEN ACHIEVED).
- 4 - DETAILS AND BMP'S ON DRAWINGS C.54-C.56 ARE INCORPORATED INTO THIS PLAN BY REFERENCE.

LAND DISTURBANCE NOTES

1. CONTRACTOR SHOULD PERFORM EARTHWORK IN ACCORDANCE WITH THE NORTH SALT LAKE CITY LAND DISTURBANCE ORDINANCE, THE CITY'S STANDARD SPECIFICATIONS, NORTH SALT LAKE CITY LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS, EROSION, SEDIMENT, REVEGETATION REQUIREMENTS, AND THE DUST CONTROL PLANS REQUIRED BY THE STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY.
2. THE CONTRACTOR WILL PERFORM EARTHWORK IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS OUTLINED IN THE LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS AND THE RECOMMENDED EARTHWORK SPECIFICATIONS FOUND IN THE REPORT OF GEOTECHNICAL ENGINEER, AND THE GEOTECHNICAL INVESTIGATION LOCATED IN THE PROJECT TECHNICAL SPECIFICATION. IN THE EVENT THERE IS A CONFLICT BETWEEN THE DOCUMENTS MENTIONED HEREIN AND NORTH SALT LAKE CITY'S EROSION AND SEDIMENT CONTROL REQUIREMENTS OR THE DUST CONTROL PLAN AS REQUIRED BY THE STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY, NORTH SALT LAKE CITY'S REQUIREMENTS AND THE STATE REQUIREMENTS WILL CONTROL.
3. THE SEQUENCE OF CONSTRUCTION IS TO BE FOLLOWED.
4. SEDIMENTATION BMP'S SHOWN ON THE EROSION CONTROL AND SEDIMENT CONTROL PLANS TO BE INSTALLED WITHIN THE SAME WORKING DAY THE LAND DISTURBANCE OCCURS.
5. DUST CONTROL BMP'S ARE TO BE ON SITE AND IMPLEMENTED AS SOON AS LAND DISTURBANCE OCCURS. THE DUST CONTROL AS REQUIRED BY THE STATE OF UTAH AIR QUALITY PLAN IS TO BE SUBMITTED WITH THE GRADING PLAN. THE DEVELOPER IS RESPONSIBLE FOR CONTROLLING THE DUST PRODUCED AT HIS PROJECT AND SHALL PROVIDE THE NECESSARY MITIGATION TO KEEP THE DUST TO THE ACCEPTABLE LIMITS IDENTIFIED IN THE AIR QUALITY PERMIT OBTAINED FOR THE STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, AND DIVISION OF AIR QUALITY.
6. ALL DISTURBED AREAS ARE TO BE REVEGETATED AND ARE TO RECEIVE REVEGETATION BMP'S INCLUDING EROSION CONTROL MATS AS SHOWN ON PLAN WITHIN 21 DAYS OF DISTURBANCE.
7. IF THE EXISTING GRADE IS DIFFERENT FROM WHAT IS SHOWN ON THIS GRADING PLAN, STOP WORK AND CONTACT THE TOWN OF VINEYARD, ENGINEERING DEPARTMENT. WORK IS TO REMAIN STOPPED UNTIL THE TOWN'S ENGINEERING DEPARTMENT PROVIDES A WRITTEN NOTICE TO RESUME WORK.
8. THE PROJECT OWNER IS RESPONSIBLE FOR MAINTAINING THE STREETS, STORM DRAINS, AND CHANNELS, DITCHES AND SWALES FREE FROM DEBRIS, SOIL, MUD, OR OTHER MATERIAL THAT WOULD CAUSE A PUBLIC SAFETY CONCERN, VIOLATE THE TOWN'S UPDES PERMIT, STATE OR FEDERAL LAWS, OR PREVENT THE FACILITY FROM OPERATING.
9. ALL CONCRETE TRUCKS ARE TO USE THE DESIGNATED WASHOUT AREA(S). FAILURE TO COMPLY WILL RESULT IN A WORK STOP AND THE OFFENDER COULD BE GUILTY OF A CLASS C MISDEMEANOR.
10. L.O.D. BARRIERS ARE TO BE IN PLACE AND MAINTAINED UNTIL WRITTEN NOTIFICATION IS RECEIVED FROM THE ENGINEERING DEPARTMENT. THE OWNER IS RESPONSIBLE FOR MAINTAINING L.O.D. BARRIERS.
11. IF DISTURBANCE OCCURS OUTSIDE THE L.O.D. WORK WILL STOP AND REMAIN STOPPED UNTIL THE WRITTEN RESPONSE IS RECEIVED FROM THE TOWN.
12. THE OWNER IS TO BE RESPONSIBLE FOR ADDITIONAL GRADING INFORMATION AS REQUIRED THROUGHOUT THE REMAINDER OF THE PROJECT.
13. SILT FENCES TO BE INSTALLED AT ALL DOWN GRADE SLOPES AND SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.
14. ADDITIONAL CONSTRUCTION ENTRANCES SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.

PROFESSIONAL ENGINEER
 3/18/15
 No. 4939900 2202
 JAMES J. MILLIGAN
 STATE OF UTAH



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DATE	REVISIONS
FEBRUARY 2015	
DRAWING NAME	REV. DATE BY COMMENTS
ER.01 SWPPP	B 3/18/15 JAM REVISE SWPPP & SHOW EROSION CONT. MAT
DESIGNED/DRAWN BY	CHECKED
AL	AL
APPROVED	

SCALE MEASURES TO ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

SWPPP

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: **B**

PROJ # **GEO.021**

ER.101

CITY OF NORTH SALT LAKE



NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT PROJECT # GEO.021

LOCATED BETWEEN EAGLEPOINT DRIVE AND PARKWAY DRIVE
IN THE CITY OF NORTH SALT LAKE



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BUILDING C, UNIT 2
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www.geostrata-llc.com

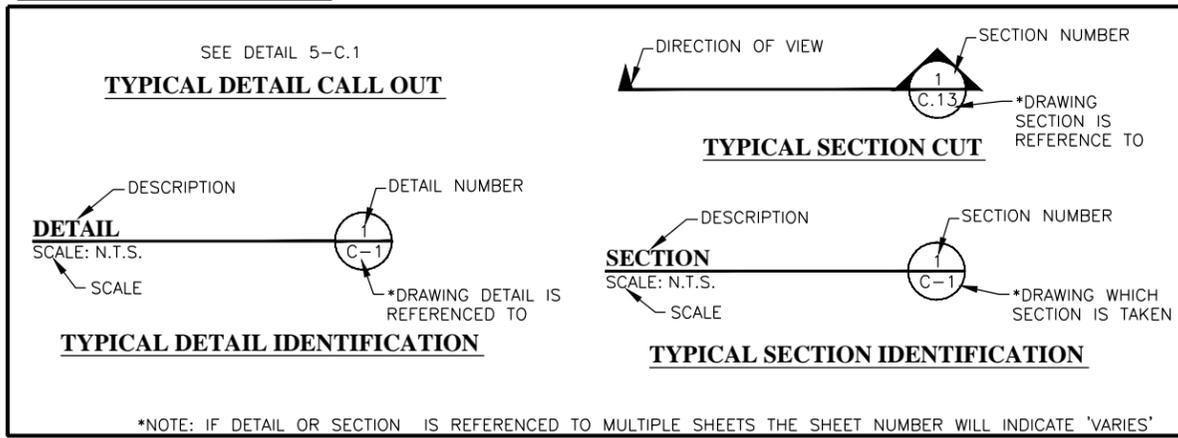
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

GEO.021

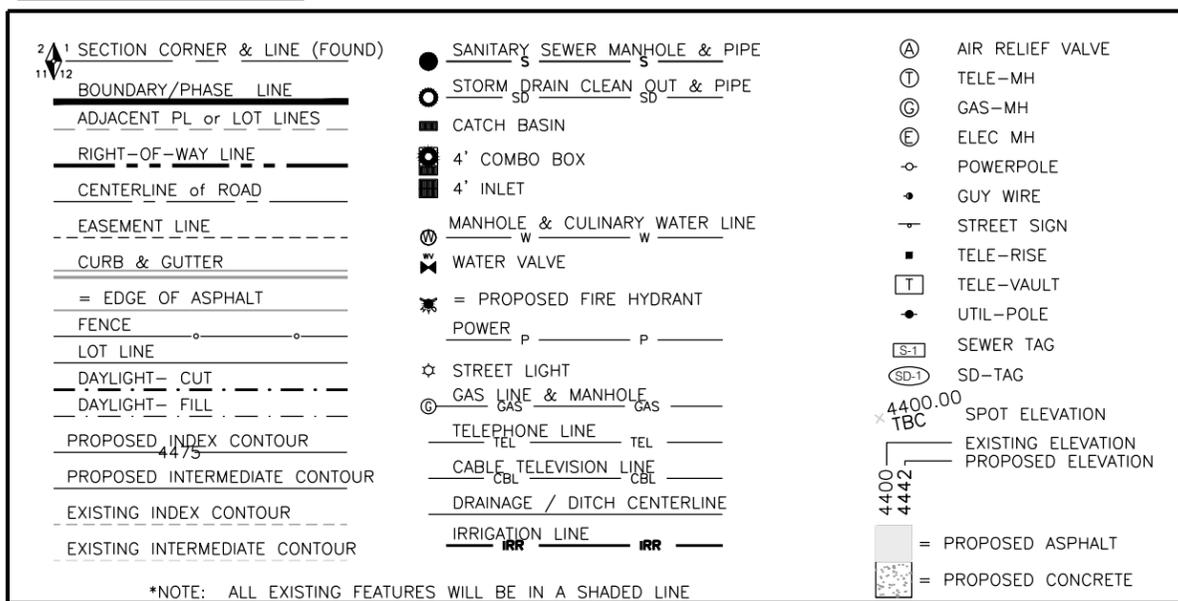
ABBREVIATIONS

ADJ	ADJUST
ADS	ADVANCE DRAINAGE SYSTEM
ARV	AIR RELEASE VALVE
BC	BAR AND CAP
BOW	BACK OF WALK
BVCE	BEGINNING VERTICAL CURVE ELEV.
BVCS	BEGINNING VERTICAL CURVE STATION
CB	CATCH BASIN
CBL	CABLE
CH	CHORD BEARING
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
COR.	SECTION CORNER
D	DELTA ANGLE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EG	EXISTING GRADE
ELEV	ELEVATION
EOC	EDGE OF CONCRETE
EP	EDGE OF PAVEMENT
EVCE	END VERTICAL CURVE ELEV.
EVCS	END VERTICAL CURVE STATION
EW	EACH WAY
EX	EXISTING
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FO	FIBER OPTICS
FT	FOOT
GB	GRADE BREAK
HC	HANDICAP
HDPE	HIGH DENSITY POLY ETHYLENE
HP	HIGH POINT
INV.	INVERT
IRR	IRRIGATION
L.F.	LINEAR FEET
LIP	LIP OF CURB
LP	LOW POINT
LT.	LEFT
MAX.	MAXIMUM
MH	MANHOLE
MIN.	MINIMUM
MON	MONUMENT
NTS	NOT TO SCALE
OC	ON CENTER
OHP	OVER HEAD POWER
PC	POINT OF CURVE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
ROW	RIGHT OF WAY
RT.	RIGHT
S	SEWER
SD	STORM DRAIN
SER	SOUTH END RADIUS
SSMH	SEWER MANHOLE
STA	STATION
STD	STANDARD
SW	SECONDARY WATER
TBC	TOP BACK OF CURB
TOA	TOP OF ASPHALT
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
UG	UNDER GROUND POWER
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
WM	WATER METER
WV	WATER VALVE

IDENTIFICATION SYSTEM



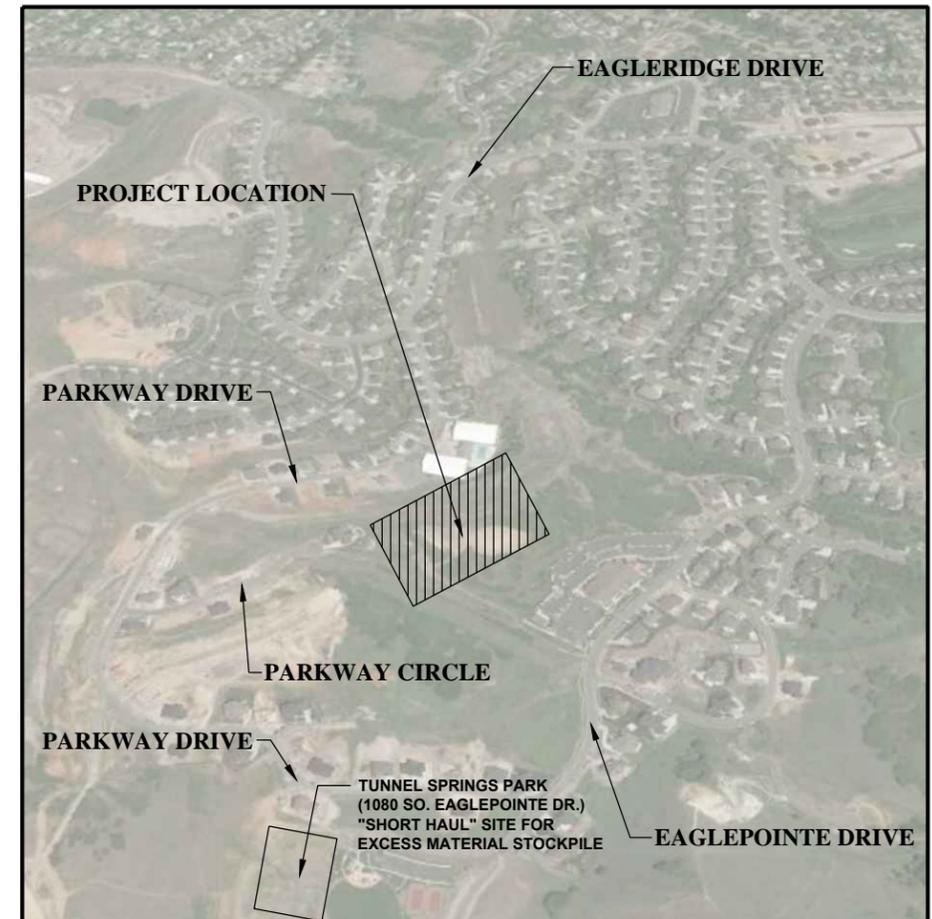
LEGEND AND SYMBOLS



SHEET INDEX

	COVER SHEET
G.101	INDEX AND LEGEND
G.102	GENERAL NOTES / UDOT NOTES
C.101	EXISTING SITE PLAN
C.102	PROPOSED GRADING PLAN ALT. 1
C.103	PROPOSED DRAINAGE AND LOWER UTILITIES
C.104	PROPOSED UPPER UTILITY RELOCATION AND DEMOLITION PLAN
C.301	PROFILE WALL 1:1 (1)
C.302	PROFILE WALL 1:1 (2)
C.303	PROFILE WALL 1:1 (3)
C.304	PROFILE PARKING LOT (1)
C.305	PROFILE PARKING LOT (2)
C.306	PROFILE PARKING LOT (3)
C.307	PROFILE TENNIS COURT (1)
C.308	PROFILE TENNIS COURT (2)
C.309	PROFILE EVANS PROPERTY
C.310	PROFILE STORM DRAIN
W.101	WALL PROFILE
W.102	WALL PROFILE
D.101	DETAILS
D.102	DETAILS
D.103	DETAILS
D.104	DETAILS
D.105	DETAILS
D.106	DETAILS
D.107	DETAILS
ER.101	SWPP PLAN
ER.102	BMP DETAILS

LOCATION MAP



CONSULTING ENGINEERS AND SURVEYORS

12401 SOUTH 460 EAST
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FAX: (801) 971-9449

846 SOUTH 1750 WEST
SALT LAKE CITY, UT 84119
PHONE: (801) 971-1191
FAX: (801) 971-3891

GILSON
ENGINEERING INC.

Geostata
Engineering & Geosciences

1442 S. Center Point Way
Salt Lake City, Utah 84143
www.geostata.com

NSI
NORTH SALT LAKE COUNTY

REVISIONS

REV#	DATE	BY	COMMENTS

DATE: FEBRUARY 2015
DRAWING NAME: INDEX
DESIGNED/DRAWN BY: AL
CHECKED: APPROVED:

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

INDEX AND LEGEND

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: **B**

PROJ. # **GEO.021**

G.101

GENERAL NOTES

1. THIS DESIGN IS AN ORIGINAL UNPUBLISHED WORK AND MAY NOT BE DUPLICATED, PUBLISHED AND/OR USED WITHOUT THE WRITTEN CONSENT OF GILSON ENGINEERING, INC.
2. THESE SHEETS - LISTED BY DRAWING INDEX, ALL ACCOMPANYING SPECIFICATIONS FOR MATERIALS, WORKMANSHIP QUALITY, AND NOTES HAVE BEEN PREPARED SOLELY FOR THE CONSTRUCTION AND FINISH OF PROJECT IMPROVEMENTS, COMPLETE AND READY FOR USE.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH PERTINENT JURISDICTIONAL CODES, RESTRICTIONS, COVENANTS, AND/OR ORDINANCES. ANY CONFLICT BETWEEN DESIGN AND REQUIREMENT SHALL BE REPORTED TO GILSON ENGINEERING, INC. BEFORE PROCEEDING. FAILURE TO DO SO VOIDS THE DESIGN.
4. ANY AND ALL PROPOSED CHANGE, MODIFICATIONS AND/OR SUBSTITUTION SHALL BE REPORTED TO GILSON ENGINEERING, INC. BEFORE PROCEEDING. ANY DEVIATION FROM THE CONTRACT DOCUMENTS, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF GILSON ENGINEERING, INC. VOIDS THE DESIGN.
5. IN THE EVENT OF CONFLICT BETWEEN THE DESIGN DOCUMENTS AND/OR JURISDICTIONAL REQUIREMENTS, THE MORE RESTRICTIVE FROM THE STANDPOINT OF SAFETY AND PHYSICAL SECURITY SHALL APPLY.
6. THE CITY SHALL BE NOTIFIED OF ANY INSTALLATION OR WORK NECESSARY TO THE FUNCTIONING, SAFETY AND/OR PHYSICAL SECURITY OF DESIGN THAT IS TO BE ENCAPSULATED OR OTHERWISE PERMANENTLY OBSCURED FROM INSPECTION A MINIMUM OF TWO (2) WORKING DAYS BEFORE ENCLOSURE.
7. ANY DAMAGE, DISRUPTION OR COMPROMISE OF AMBIENT RIGHTS-OF-WAY, UTILITIES, OR ENVIRONMENTAL QUALITY SHALL BE IMMEDIATELY RECTIFIED BY THE CONTRACTOR TO THE SATISFACTION OF GILSON ENGINEERING, INC. AT NO COST TO THE OWNER.
8. ALL WORK SHALL BE INSPECTED BY GOVERNING AGENCIES IN ACCORDANCE WITH THEIR REQUIREMENTS. JURISDICTIONAL APPROVAL SHALL BE SECURED BEFORE PROCEEDING WITH WORK.
9. CONTRACTOR IS RESPONSIBLE TO SCHEDULE INSPECTIONS WITH CITY.

CONSTRUCTION NOTES

1. ALL WORK WITHIN THE SITE SHALL CONFORM TO THE CURRENT CITY STANDARDS AND SPECIFICATIONS AND APWA.
2. CONTRACTOR SHALL MEET ALL OF THE REQUIREMENTS ESTABLISHED FOR SAFE TRENCHING. (SEE OSHA AND UOSHA REQUIREMENTS, LATEST EDITIONS).
3. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES BEFORE LAYING PIPE WITHIN 200 FEET OF SAID UTILITIES WHICH MAY BE EXPOSED, DAMAGED OR CROSSED AS SHOWN ON THE DRAWINGS OR AS "BLUE STAKED". CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE UTILITY COMPANY TO MOVE THE UTILITY IF NECESSARY OR OBTAIN PERMISSION FROM THE ENGINEER TO MODIFY GRADES OF PROJECT LINES IN ORDER TO GO AROUND EXISTING UTILITIES.
4. SEWER MAINS, WATER MAINS, GAS MAINS AND OTHER UTILITIES ARE SHOWN ON THE PLANS IN A GENERAL SCHEMATIC WAY ACCORDING TO INFORMATION RECEIVED FROM OTHERS AND SOMETIMES FROM FIELD MEASUREMENTS. THE ACCURACY OR COMPLETENESS OF THE LOCATIONS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF EXISTING SERVICE CONNECTIONS AND UTILITIES, VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS AND TAKE THE NECESSARY STEPS TO AVOID THEM.
5. SPECIFIC INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS SHALL SUPERSEDE ITEMS COVERED IN THESE DRAWINGS.

UTILITY NOTES

1. CONTRACTOR SHALL VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTING ANY NEW UTILITY LINES. NOTIFY CIVIL ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO ANY CONNECTIONS BEING MADE.
2. WATER METERS SHALL BE INSTALLED PER CURRENT WATER DISTRICT STANDARDS AND SPECIFICATIONS. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL ALL ITEMS REQUIRED.
3. WATER LINES, VALVES, FIRE HYDRANTS, FITTINGS ETC. ARE TO BE CONSTRUCTED AS SHOWN. CONTRACTOR IS RESPONSIBLE TO CONSTRUCT ANY VERTICAL ADJUSTMENTS NECESSARY TO CLEAR SEWER, STORM DRAIN OR OTHER UTILITIES AS NECESSARY INCLUDING VALVE BOXES AND HYDRANT SPOOLS TO PROPER GRADE.
4. CONTRACTOR SHALL PROTECT EXISTING PIEZOMETER AND INCLINOMETER MONITORING WELLS DURING CONSTRUCTION. UPON COMPLETION OF GRADING, CONTRACTOR SHALL CUT PVC PIPE TO 6" BELOW GROUND SURFACE, RE-INSTALL PROTECTIVE HANDHOLE AND GROUT/CONCRETE IN PLACE.
5. NO CONSTRUCTION ACTIVITY OF ANY KIND CAN BE PERFORMED ON KERN RIVER'S RIGHT-OF-WAY WITHOUT CONTACTING KERN RIVER, SIGNING AN ENCROACHMENT PERMIT OR AGREEMENT, COMPLYING WITH LOCAL UTILITY ONE-CALL LAWS, AND ENGAGING IN ANY OTHER ACTIONS DEEMED NECESSARY BY KERN RIVER TO PROTECT KERN RIVER'S FACILITIES.
6. ALL CONSTRUCTION ACTIVITIES PERFORMED ON KERN RIVER AND QUESTAR RIGHT OF WAY SHALL BE PERFORMED ACCORDING TO THEIR REQUIREMENTS.

CAUTION NOTICE TO CONTRACTOR

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY 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 THE PLANS.

THE CONTRACTOR AGREES THAT HE 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; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS; AND THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE 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 SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

**CALL BEFORE YOU DIG.
IT'S FREE &
IT'S THE LAW.**

(TOLL-FREE)
**1-800-662-4111
208-2100**
(SALT LAKE METRO)

205 WEST 700 SOUTH, SUITE 101
SALT LAKE CITY, UTAH 84101



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REV#	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015	DRAWING NAME: GENERAL NOTES	DESIGNED/DRAWN BY: AL	CHECKED:	APPROVED:
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GENERAL NOTES / UDOT NOTES

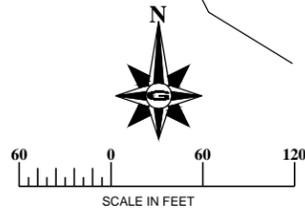
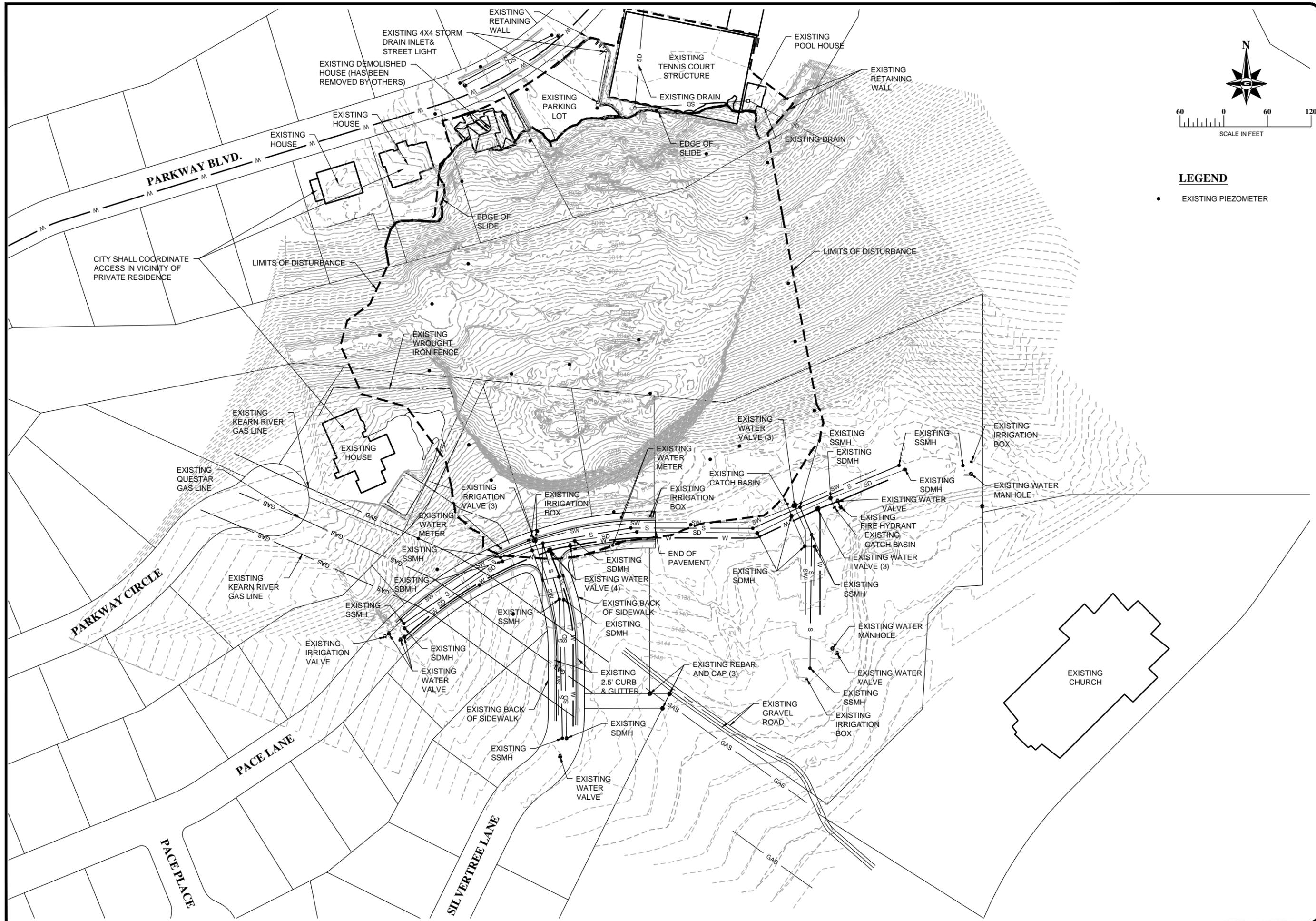
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: **A**

PROJ. # GEO.021

G.102



LEGEND

- EXISTING PIEZOMETER

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 ENGINEERING

REV#	DATE	BY	COMMENTS

DATE: FEBRUARY 2015	CHECKED: AL
DRAWING NAME: C-101 EX SITE PLAN	APPROVED: AL
DESIGNED/DRAWN BY: AL	

EXISTING SITE PLAN
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

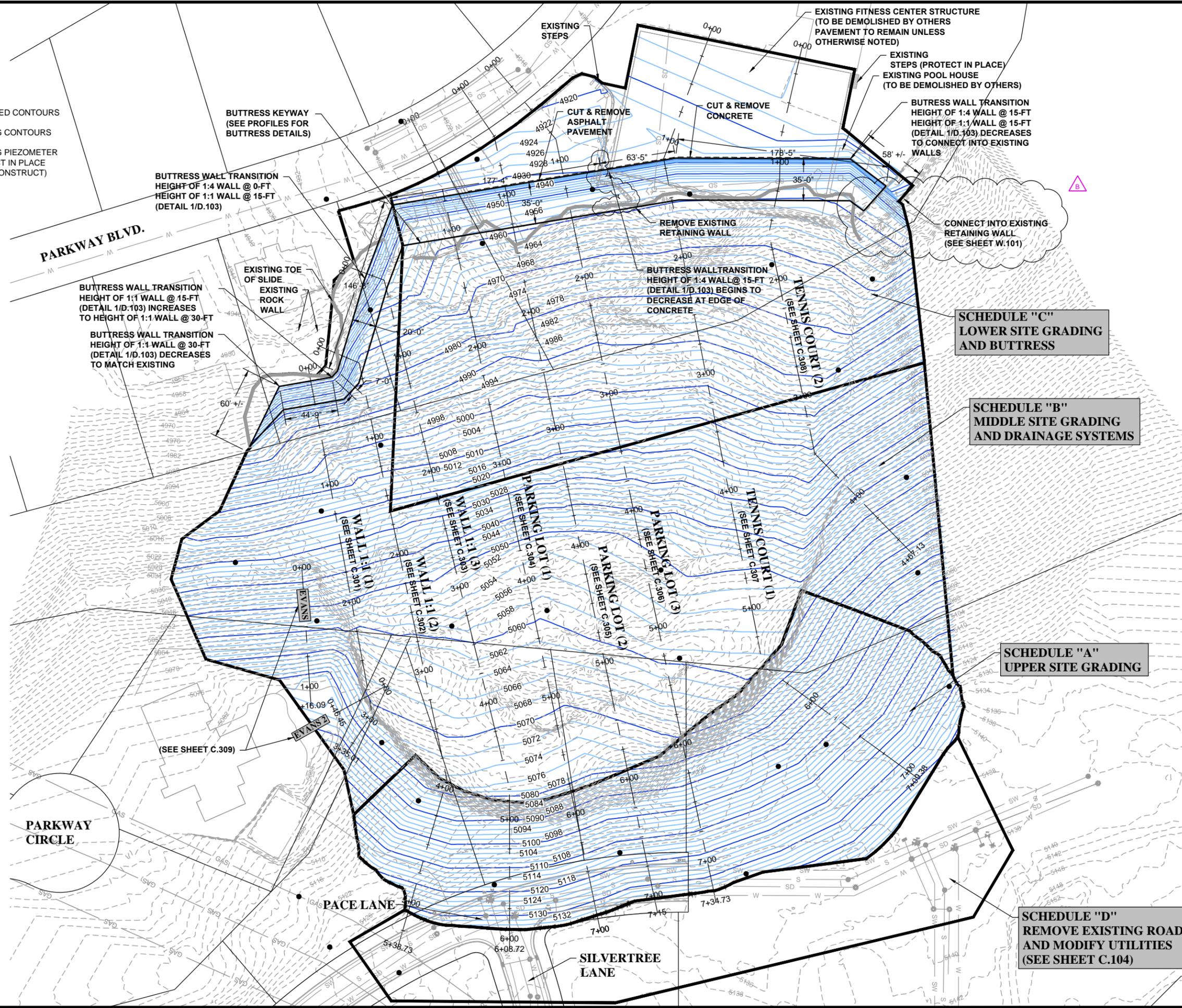
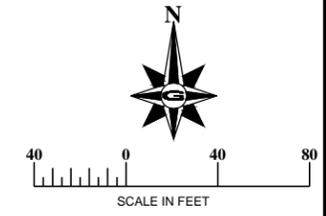
REVISION: **A**

PROJ. # **GEO.021**

C.101

LEGEND

-  PROPOSED CONTOURS
-  EXISTING CONTOURS
-  EXISTING PIEZOMETER (PROTECT IN PLACE OR RE-CONSTRUCT)



PARKWAY BLVD.

BUTTRISS WALL TRANSITION HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103) INCREASES TO HEIGHT OF 1:1 WALL @ 30-FT

BUTTRISS WALL TRANSITION HEIGHT OF 1:1 WALL @ 30-FT (DETAIL 1/D.103) DECREASES TO MATCH EXISTING

BUTTRISS KEYWAY (SEE PROFILES FOR BUTTRISS DETAILS)

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 0-FT HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103)

EXISTING STEPS

CUT & REMOVE ASPHALT PAVEMENT

CUT & REMOVE CONCRETE

EXISTING FITNESS CENTER STRUCTURE (TO BE DEMOLISHED BY OTHERS PAVEMENT TO REMAIN UNLESS OTHERWISE NOTED)

EXISTING STEPS (PROTECT IN PLACE) EXISTING POOL HOUSE (TO BE DEMOLISHED BY OTHERS)

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 15-FT HEIGHT OF 1:1 WALL @ 15-FT (DETAIL 1/D.103) DECREASES TO CONNECT INTO EXISTING WALLS

REMOVE EXISTING RETAINING WALL

BUTTRISS WALL TRANSITION HEIGHT OF 1:4 WALL @ 15-FT (DETAIL 1/D.103) BEGINS TO DECREASE AT EDGE OF CONCRETE

CONNECT INTO EXISTING RETAINING WALL (SEE SHEET W-101)

SCHEDULE "C" LOWER SITE GRADING AND BUTTRISS

SCHEDULE "B" MIDDLE SITE GRADING AND DRAINAGE SYSTEMS

SCHEDULE "A" UPPER SITE GRADING

SCHEDULE "D" REMOVE EXISTING ROADWAY AND MODIFY UTILITIES (SEE SHEET C.104)

PARKWAY CIRCLE

PACE LANE

SILVERTREE LANE

EVANS

EVANS

WALL 1:1 (1)

WALL 1:1 (2)

WALL 1:1 (3)

PARKING LOT (1)

PARKING LOT (2)

PARKING LOT (3)

TENNIS COURT (1)

TENNIS COURT (2)

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 CITY OF NORTH SALT LAKE

REV#	DATE	BY	COMMENTS	REVISIONS
B	01/19/15	JM	REVISE BUTTRISS WALL TIE IN @ EAST END	
C	10/2		GRADING PLAN	

DATE: FEBRUARY 2015
 DRAWING NAME: NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 GRADING PLAN
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

DATE: FEBRUARY 2015	REVISIONS
DRAWING NAME: NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT	
GRADING PLAN	
DESIGNED/DRAWN BY: AL	
CHECKED: APPROVED:	

PROPOSED GRADING PLAN

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: B

PROJ. # GEO.021

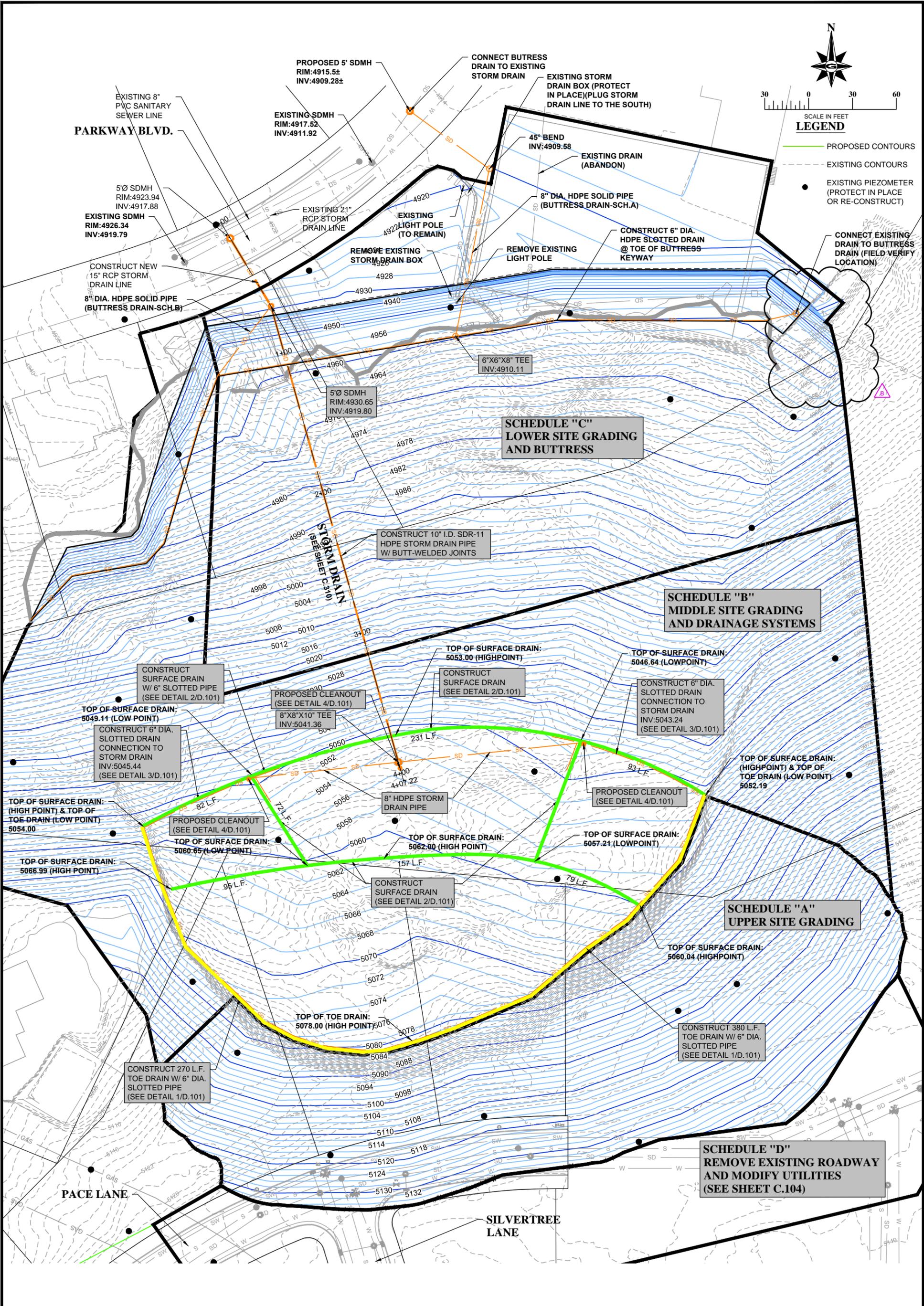
C.102



SCALE IN FEET
30 0 30 60

LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- EXISTING PIEZOMETER (PROTECT IN PLACE OR RE-CONSTRUCT)



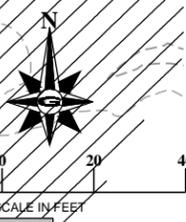
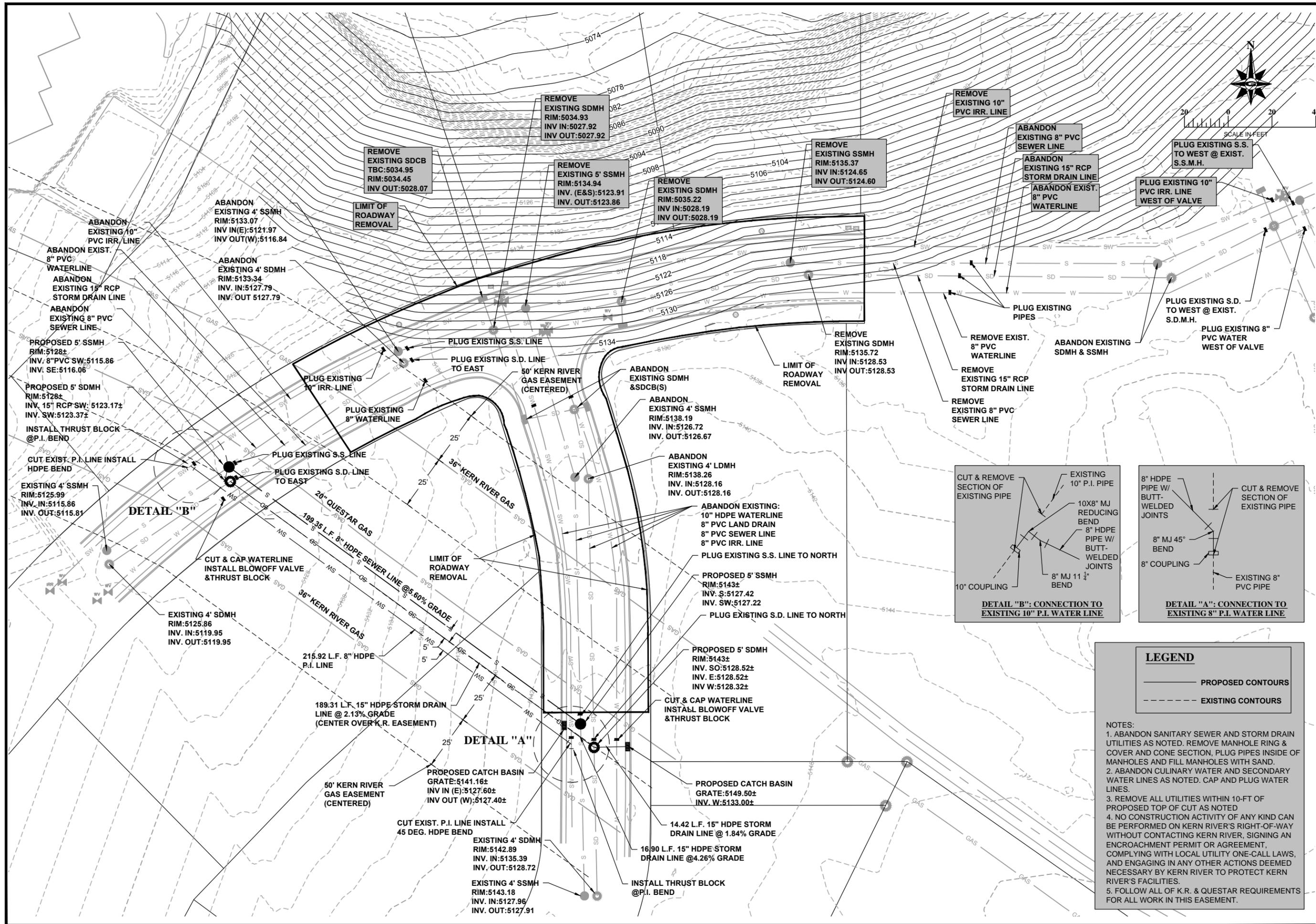
C.103	PROPOSED DRAINAGE AND UTILITIES NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT NORTH SALT LAKE, UTAH	DATE: FEBRUARY 2015	REVISIONS					
		DRAWING NAME: C.103 DRAINAGE	REV. DATE: 3/18/15				BY: JM	COMMENTS: REVISE BUTTRESS WALL TIE IN @ EAST END
		DESIGNED/DRAWN BY: AL						
		CHECKED: APPROVED:						

SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

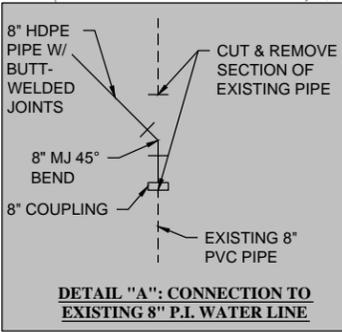
1425 S. Center Point Way
Bluffdale, Utah 84065
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www.geostrata-llc.com

12401 SOUTH 450 EAST
DRAPER, UT 84020
BUILDING C, UNIT 2
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5440 SOUTH 1700 WEST
RIVERDALE, UT 84005
PHONE: (801) 773-1191
FAX: (801) 773-0991



DETAIL "B"



LEGEND

— PROPOSED CONTOURS
 - - - EXISTING CONTOURS

NOTES:

1. ABANDON SANITARY SEWER AND STORM DRAIN UTILITIES AS NOTED. REMOVE MANHOLE RING & COVER AND CONE SECTION, PLUG PIPES INSIDE OF MANHOLES AND FILL MANHOLES WITH SAND.
2. ABANDON CULINARY WATER AND SECONDARY WATER LINES AS NOTED. CAP AND PLUG WATER LINES.
3. REMOVE ALL UTILITIES WITHIN 10-FT OF PROPOSED TOP OF CUT AS NOTED
4. NO CONSTRUCTION ACTIVITY OF ANY KIND CAN BE PERFORMED ON KERN RIVER'S RIGHT-OF-WAY WITHOUT CONTACTING KERN RIVER, SIGNING AN ENCROACHMENT PERMIT OR AGREEMENT, COMPLYING WITH LOCAL UTILITY ONE-CALL LAWS, AND ENGAGING IN ANY OTHER ACTIONS DEEMED NECESSARY BY KERN RIVER TO PROTECT KERN RIVER'S FACILITIES.
5. FOLLOW ALL OF K.R. & QUESTAR REQUIREMENTS FOR ALL WORK IN THIS EASEMENT.

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 12401 SOUTH 400 EAST
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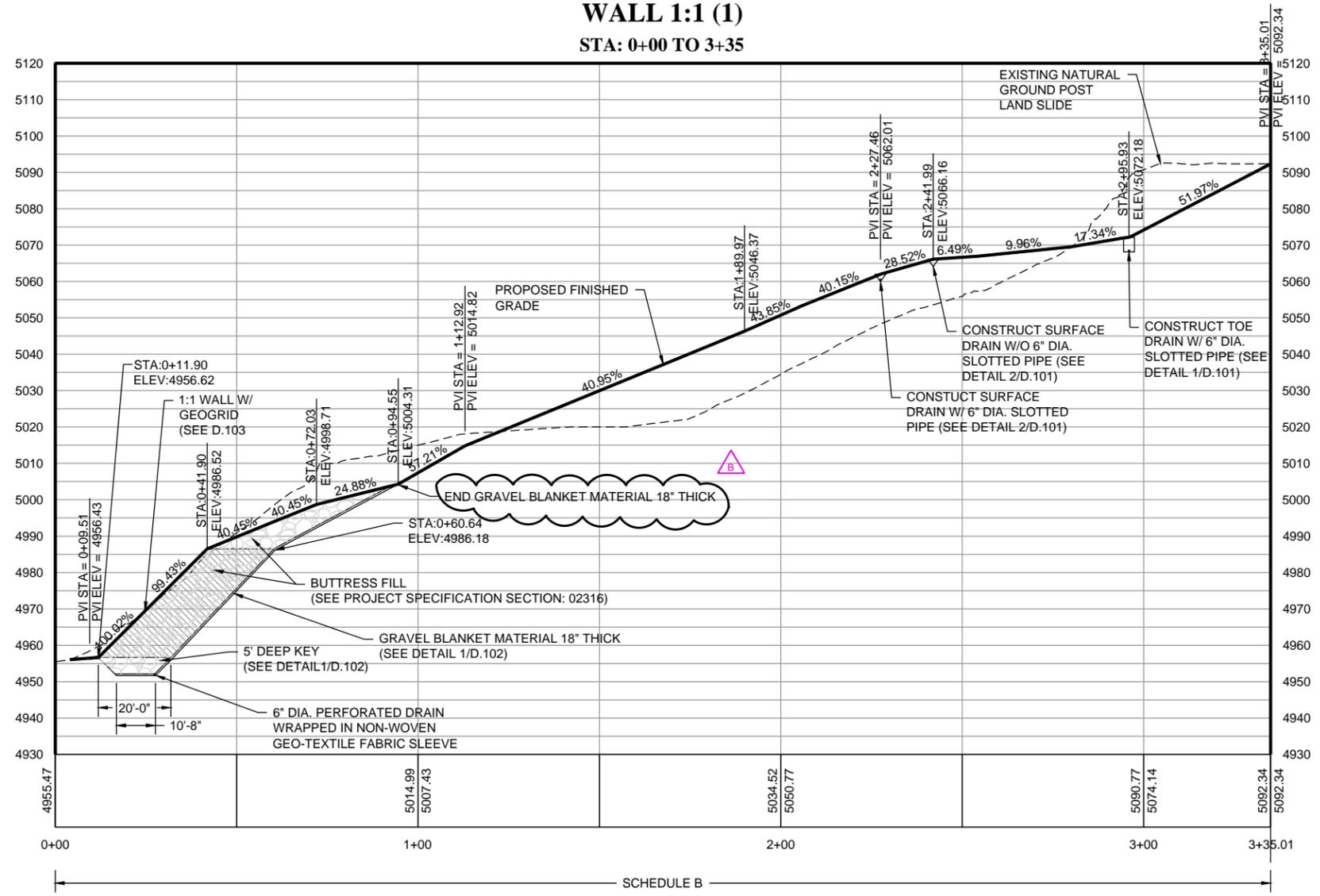
REV. DATE	BY	COMMENTS

DATE: FEBRUARY 2015
 DRAWING NAME: C-104 UTILITY
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

UTILITY RECONFIGURATION
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **A**
 PROJ. # **GEO.021**
C.104

WALL 1:1 (1)
STA: 0+00 TO 3+35



REV	DATE	BY	COMMENTS

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

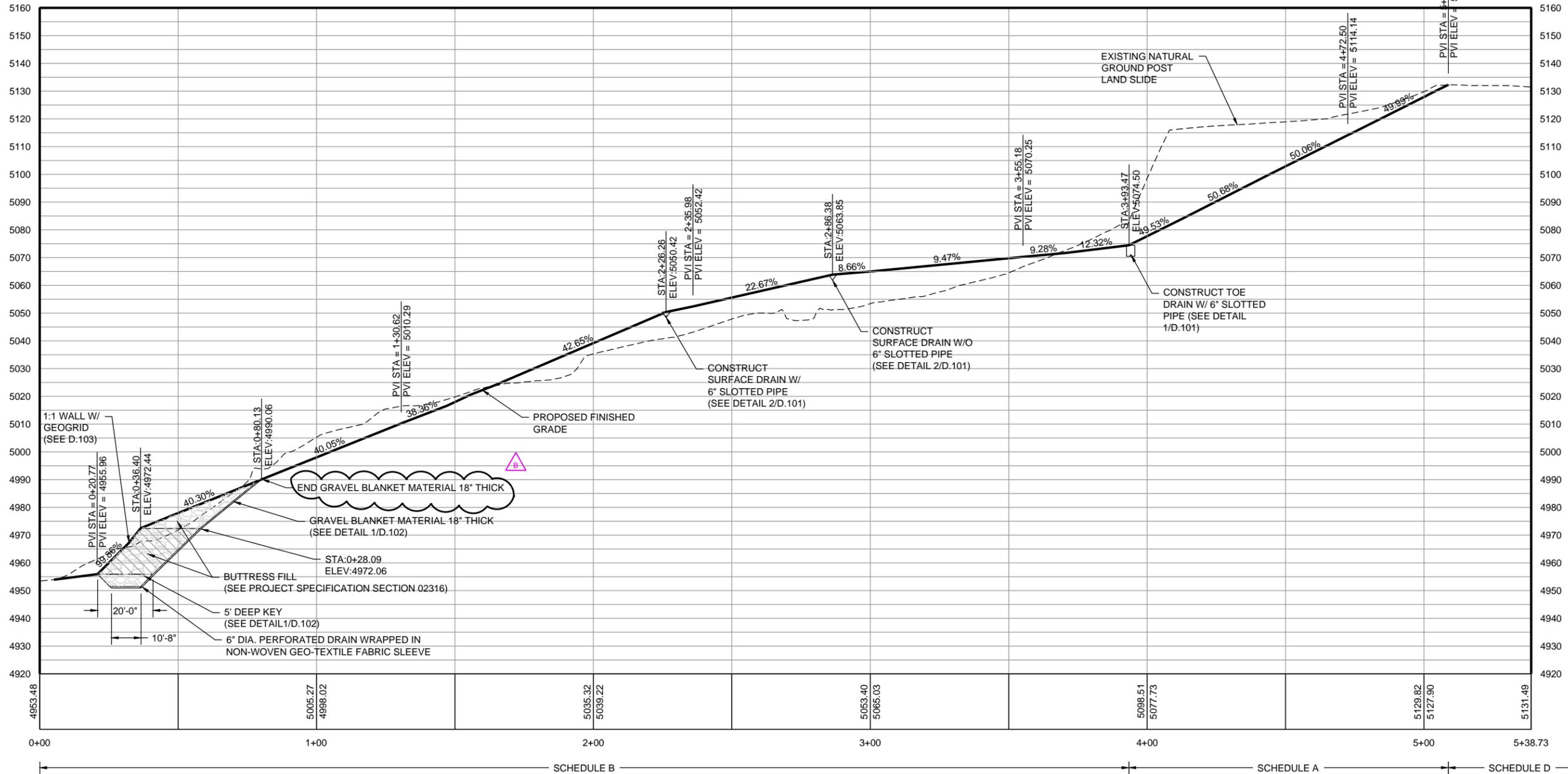
DATE: FEBRUARY 2015	CHECKED: AL
DRAWING NAME: C.301	APPROVED: AL
PROJECT: PROFILE	DESIGNED/DRAWN BY: AL

PROFILE WALL 1:1 (1)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: B
 PROJ. # GEO.021
C.301

SCALE:
 HOR: 1" = 20'
 VER: 1" = 20'

WALL 1:1 (2)
STA: 0+00 TO 5+39



REV#	DATE	BY	COMMENTS
0			

REVISIONS

DATE: FEBRUARY 2015
 DRAWING NAME: C.302
 PROFILE: AL
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

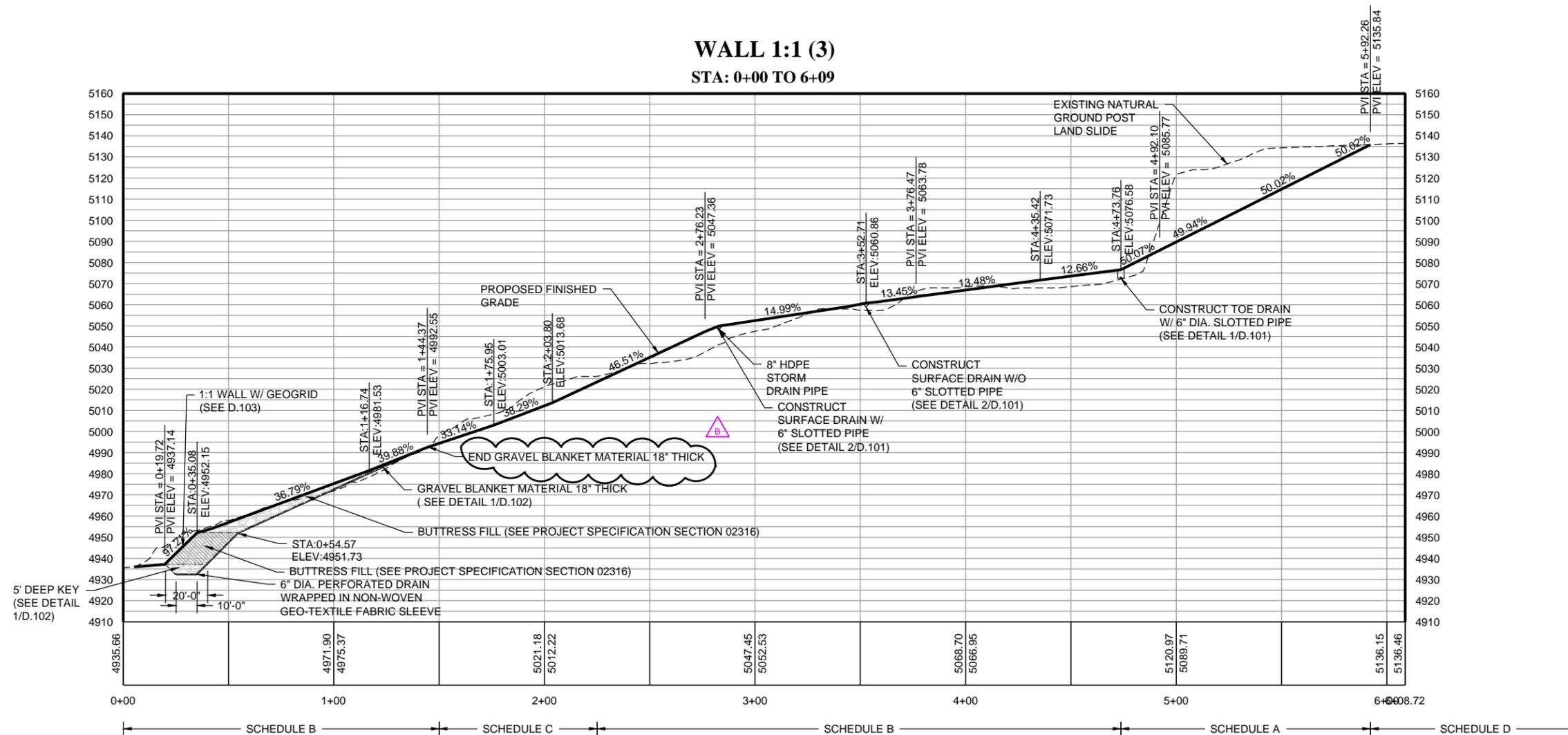
SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

PROFILE WALL 1:1 (2)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: B
 PROJ. # GEO.021
C.302

SCALE:
 HOR: 1" = 20'
 VER: 1" = 20'

WALL 1:1 (3)
STA: 0+00 TO 6+09



REV	DATE	BY	COMMENTS

REVISIONS

REV DATE BY COMMENTS

B 01/15/15 JIM ADD NOTE FOR END OF GRAVEL BLANKET

DATE: FEBRUARY 2015	CHECKED: []	APPROVED: []
DRAWING NAME: C.303	DESIGNED/DRAWN BY: AL	

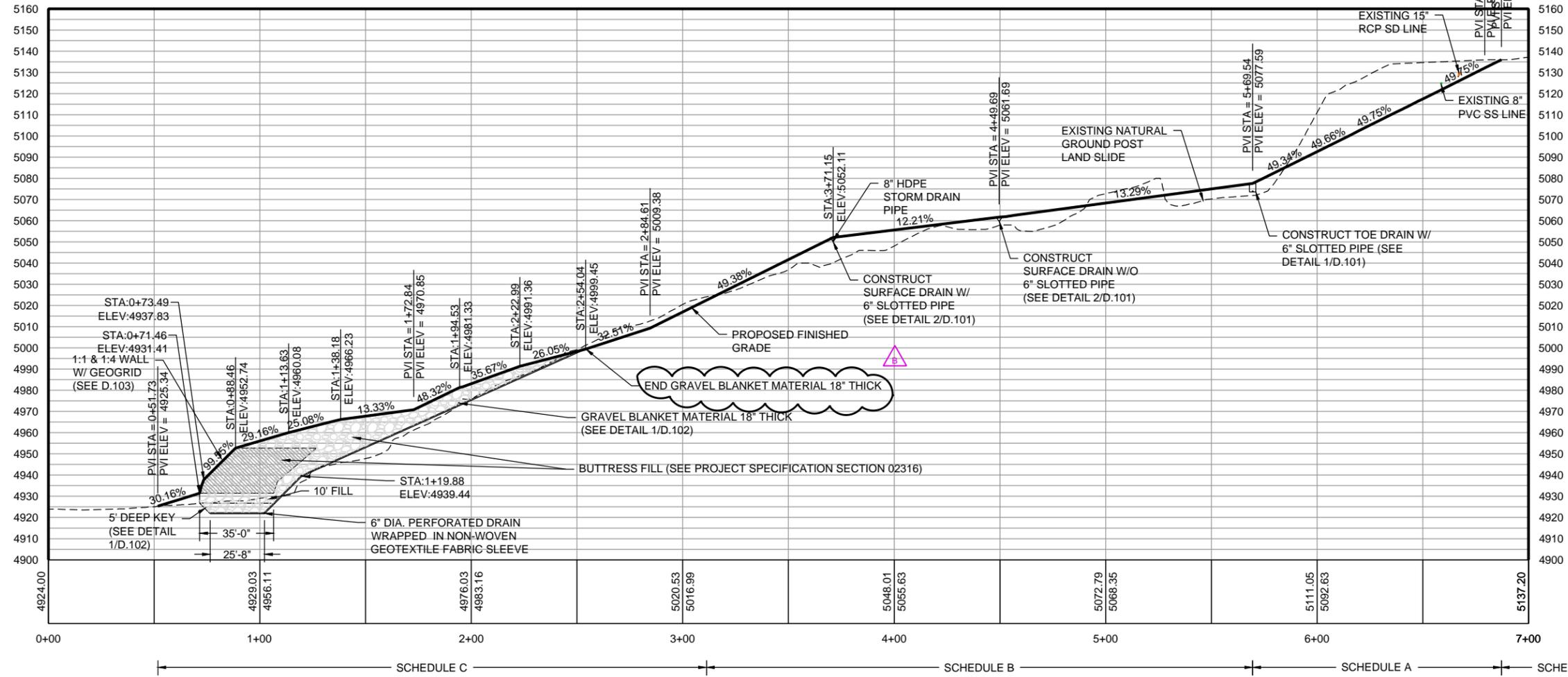
PROFILE WALL 1:1 (3)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: B
 PROJ. # GEO.021
C.303

SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'

PARKING LOT (1)

STA: 0+00 TO 7+00



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REV	DATE	BY	COMMENTS

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REV DATE BY COMMENTS

B 01/19/15 JLM ADD NOTE FOR END OF GRAVEL BLANKET

DATE: FEBRUARY 2015	DESIGNED/DRAWN BY: AL	CHECKED: AL	APPROVED: AL
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PROFILE PARKING LOT (1)

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: B

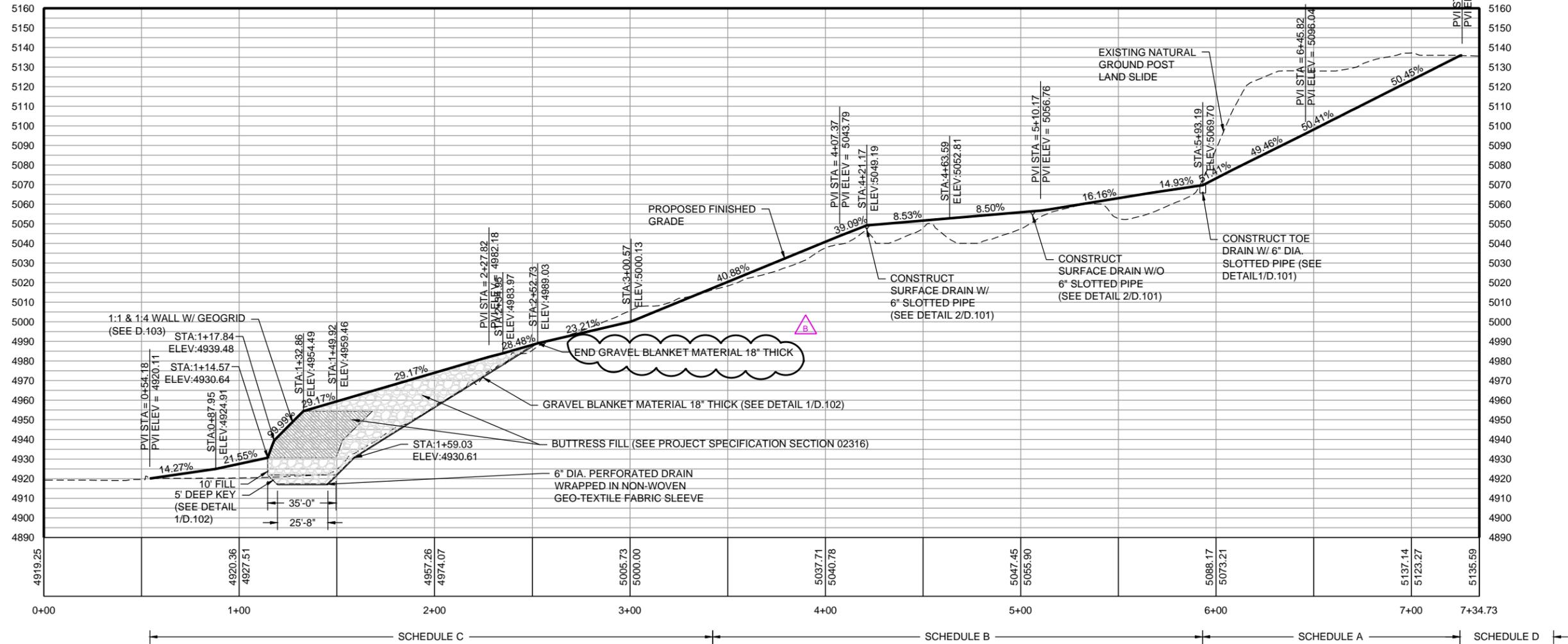
PROJ. # GEO.021

C.304

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

PARKING LOT (3)

STA: 0+00 TO 7+35



REV	DATE	BY	COMMENTS

DATE: FEBRUARY 2015	DESIGNED BY: AL	CHECKED: []	APPROVED: []
DRAWING NAME: C.306	PROJECT: []	DESIGNED/DRAWN BY: []	

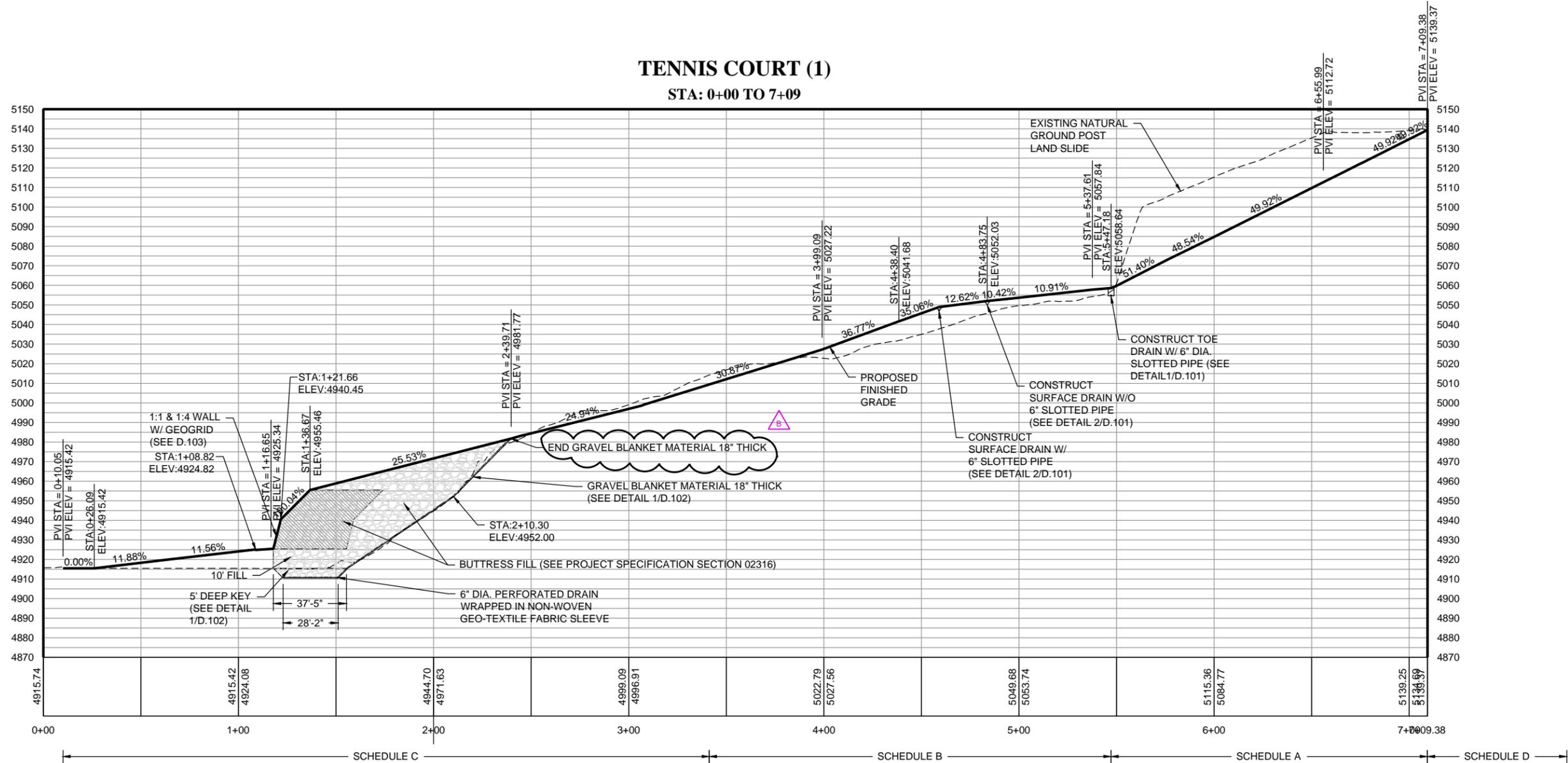
PROFILE PARKING LOT (3)
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: B
 PROJ. # GEO.021
C.306

SCALE:
 HOR: 1" = 30'
 VER: 1" = 30'

TENNIS COURT (1)

STA: 0+00 TO 7+09



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REV DATE BY COMMENTS

B 01/19/15 JLM ADD NOTE FOR END OF GRAVEL BLANKET

DATE: FEBRUARY 2015	CHECKED: AL
DRAWING NAME: PROFILE	APPROVED: AL
DESIGNED/DRAWN BY: AL	

PROFILE TENNIS COURT (1)

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

REVISION: B

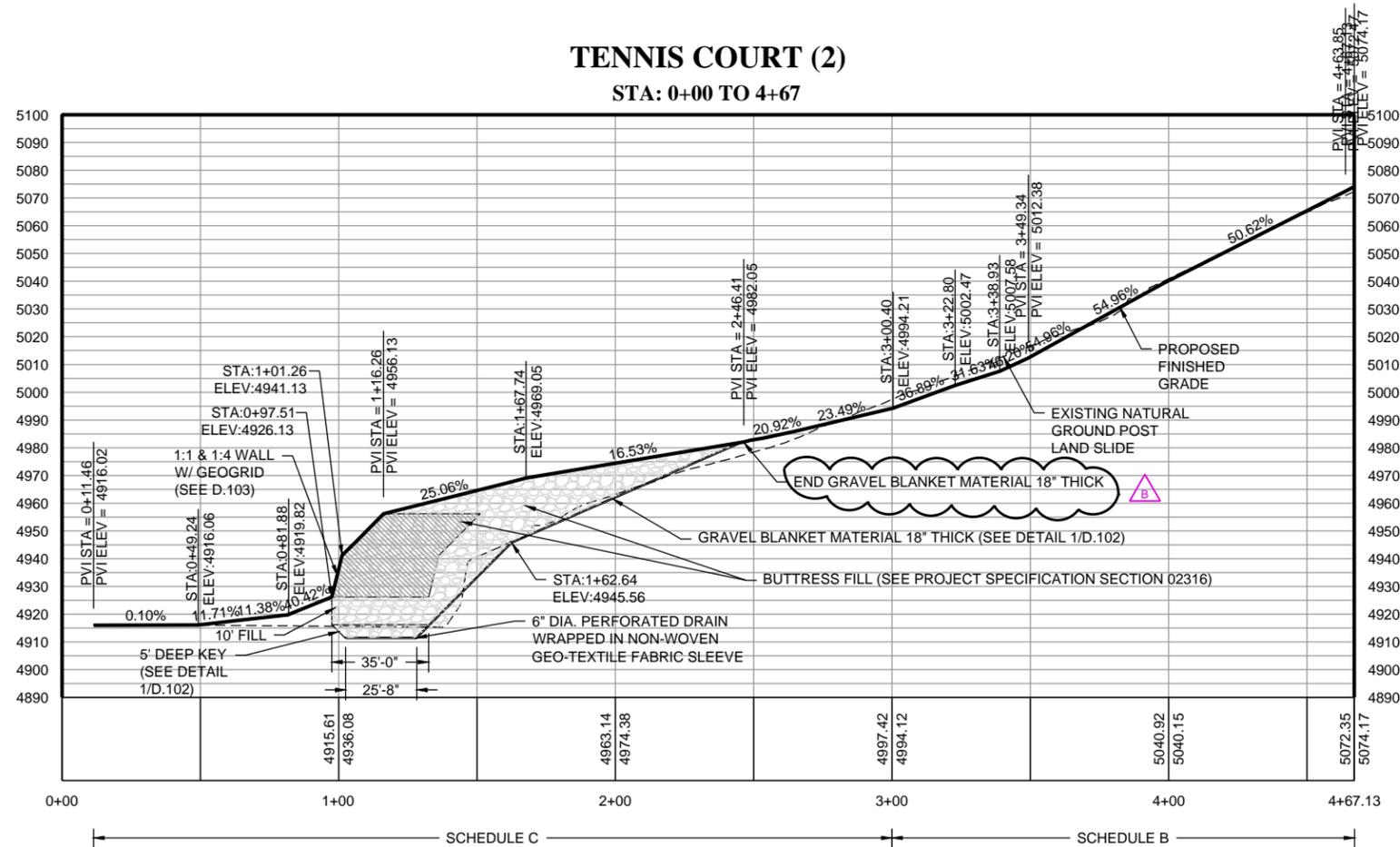
PROJ. # GEO.021

C.307

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

TENNIS COURT (2)

STA: 0+00 TO 4+67



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NORTH SALT LAKE UTILITY

REV	DATE	BY	COMMENTS

REVISIONS

REV DATE BY COMMENTS

B 02/19/15 DJM ADD NOTE FOR END OF GRAVEL BLANKET

DATE: FEBRUARY 2015	DRAWING NAME: C-308	PROJECT: PROFILE	DESIGNED/DRAWN BY: AL	CHECKED: I	APPROVED:
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PROFILE TENNIS COURT (2)

NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

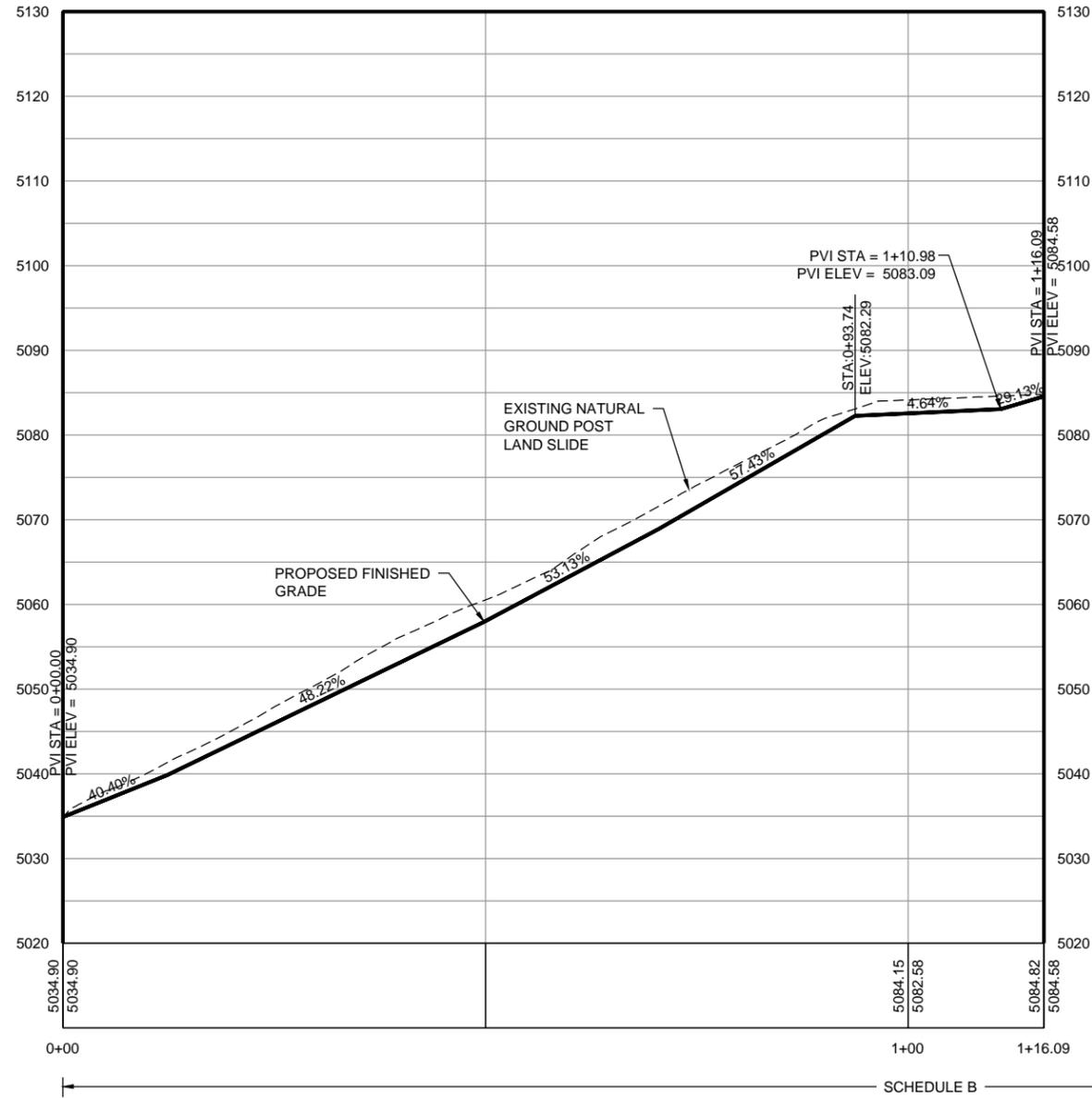
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PROJ. # GEO.021

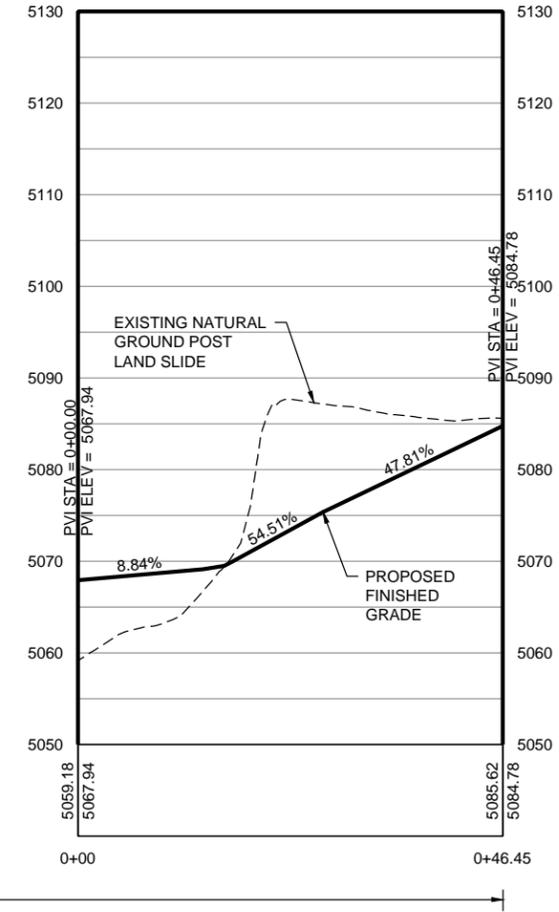
C.308

SCALE:
HOR: 1" = 30'
VER: 1" = 30'

EVANS
STA: 0+00 TO 1+16



EVANS 2
STA: 0+00 TO 0+46



NOTE:
PROFILES SHOWN ARE FOR REFERENCE ONLY.
TIE IN POINTS FOR PROPOSED SURFACE TO
EXISTING SURFACE PER PLAN.

SCHEDULE B



REV	DATE	BY	COMMENTS
0			

DATE: FEBRUARY 2015	DESIGNED/DRAWN BY: AL	CHECKED: I	APPROVED:
---------------------	-----------------------	------------	-----------

PROFILE EVANS PROPERTY
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

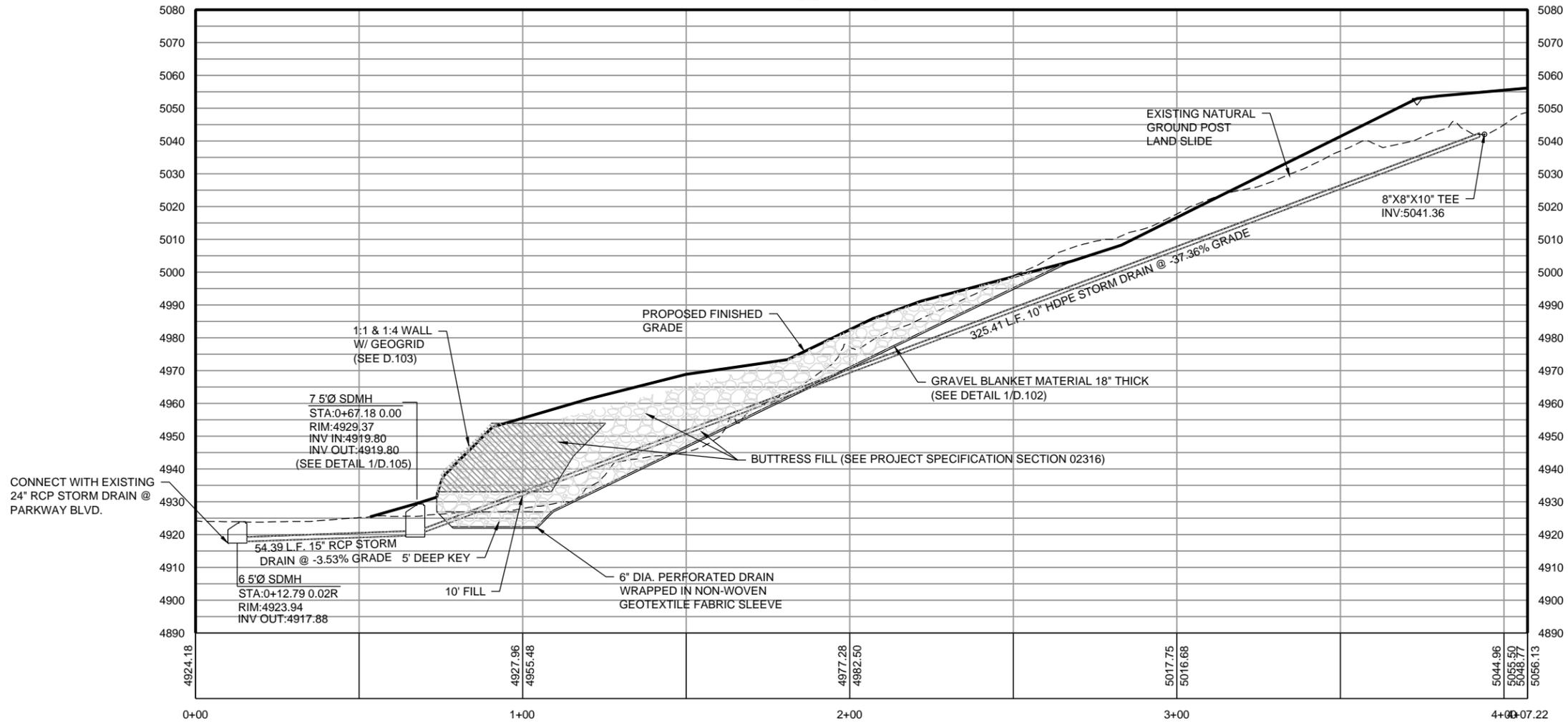
REVISION: A

PROJ. # GEO.021

C.309

SCALE:
HOR: 1" = 10'
VER: 1" = 10'

STORM DRAIN
STA: 0+00 TO 4+07



- NOTES:
1. STORM DRAIN TO BE CONSTRUCTED WITH SCHEDULE B
 2. SEE SHEET C.304 FOR ADDITIONAL SURFACE PROFILE DETAILS IN AREA OF STORM DRAIN.
 3. IF SCHEDULE B IS CONSTRUCTED BEFORE SCHEDULE C CONSTRUCT STORM DRAIN PER PLAN WITH A MINIMUM OF 2-FT OF COVER OVER TOP OF STORM DRAIN PIPE

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REV	DATE	BY	COMMENTS

REVISIONS

DATE: FEBRUARY 2015
DRAWING NAME: C.310
PROJECT: PROJECT
DESIGNED/DRAWN BY: AL
CHECKED: APPROVED:

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

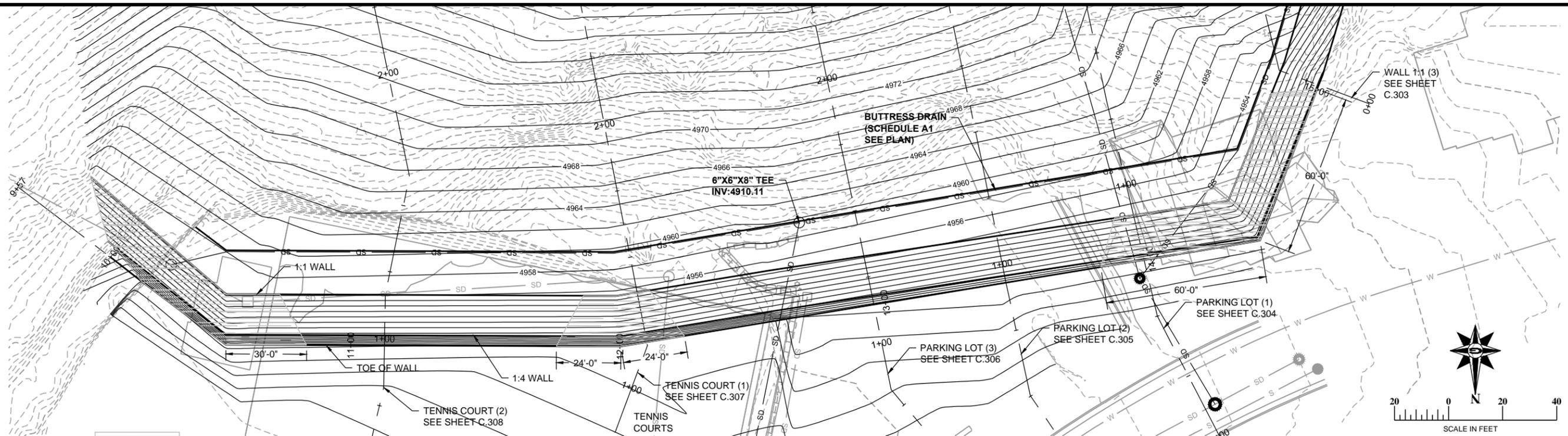
PROFILE STORM DRAIN
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

C.310

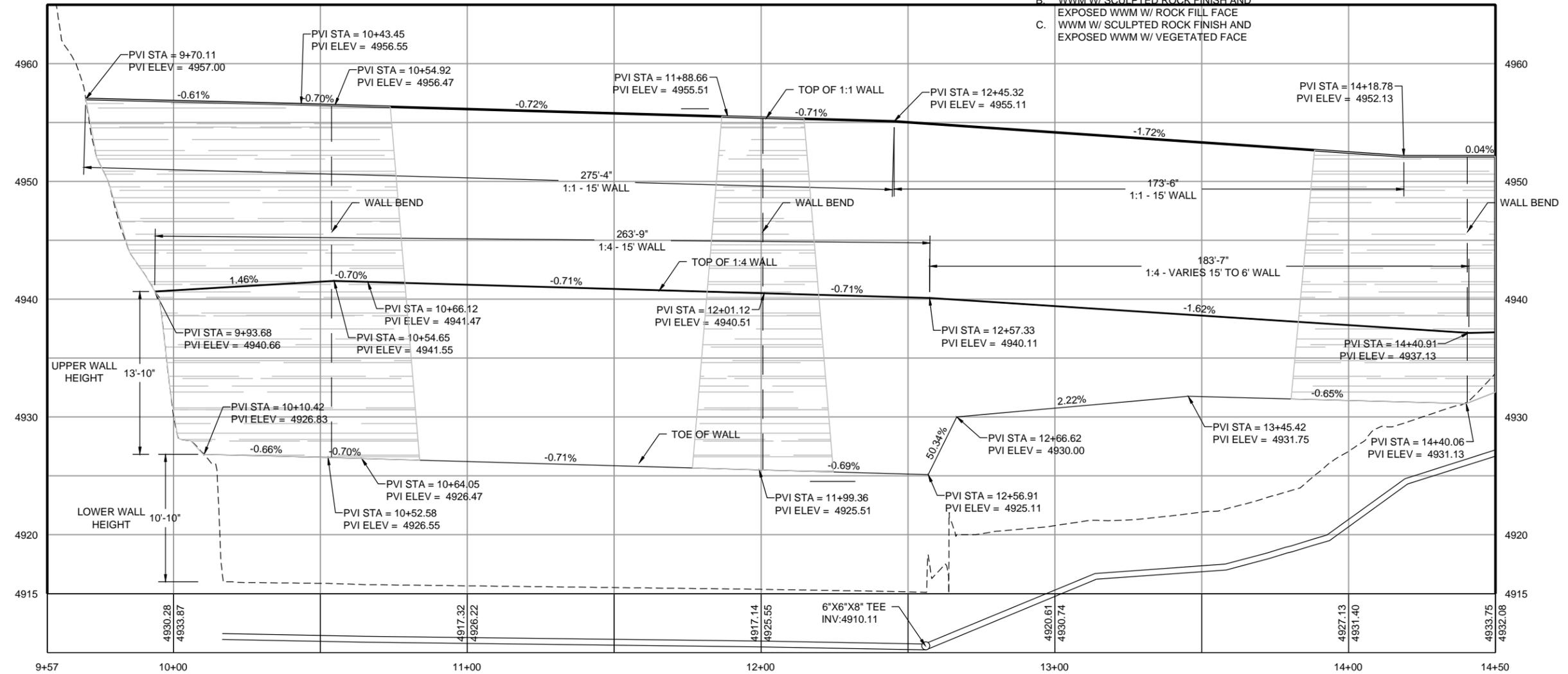
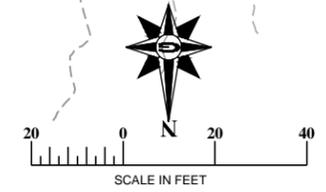
SCALE:
HOR: 1" = 20'
VER: 1" = 20'



WWM W/ SCULPTED ROCK FINISH OPTION

WALL 1
STA: 9+57 TO 14+50

- MSE WALL FINISH OPTIONS:
- A. GUNITE (SHOTCRETE) SMOOTH FINISH
 - B. WWM W/ SCULPTED ROCK FINISH AND EXPOSED WWM W/ ROCK FILL FACE
 - C. WWM W/ SCULPTED ROCK FINISH AND EXPOSED WWM W/ VEGETATED FACE



SEE SHEET W. 102

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REV#	DATE	BY	COMMENTS
1	FEBRUARY 2015	AL	ADD WALL FACING OPTIONS & REVISE TIE IN
2			ADD WALL FACING OPTIONS & REVISE TIE IN

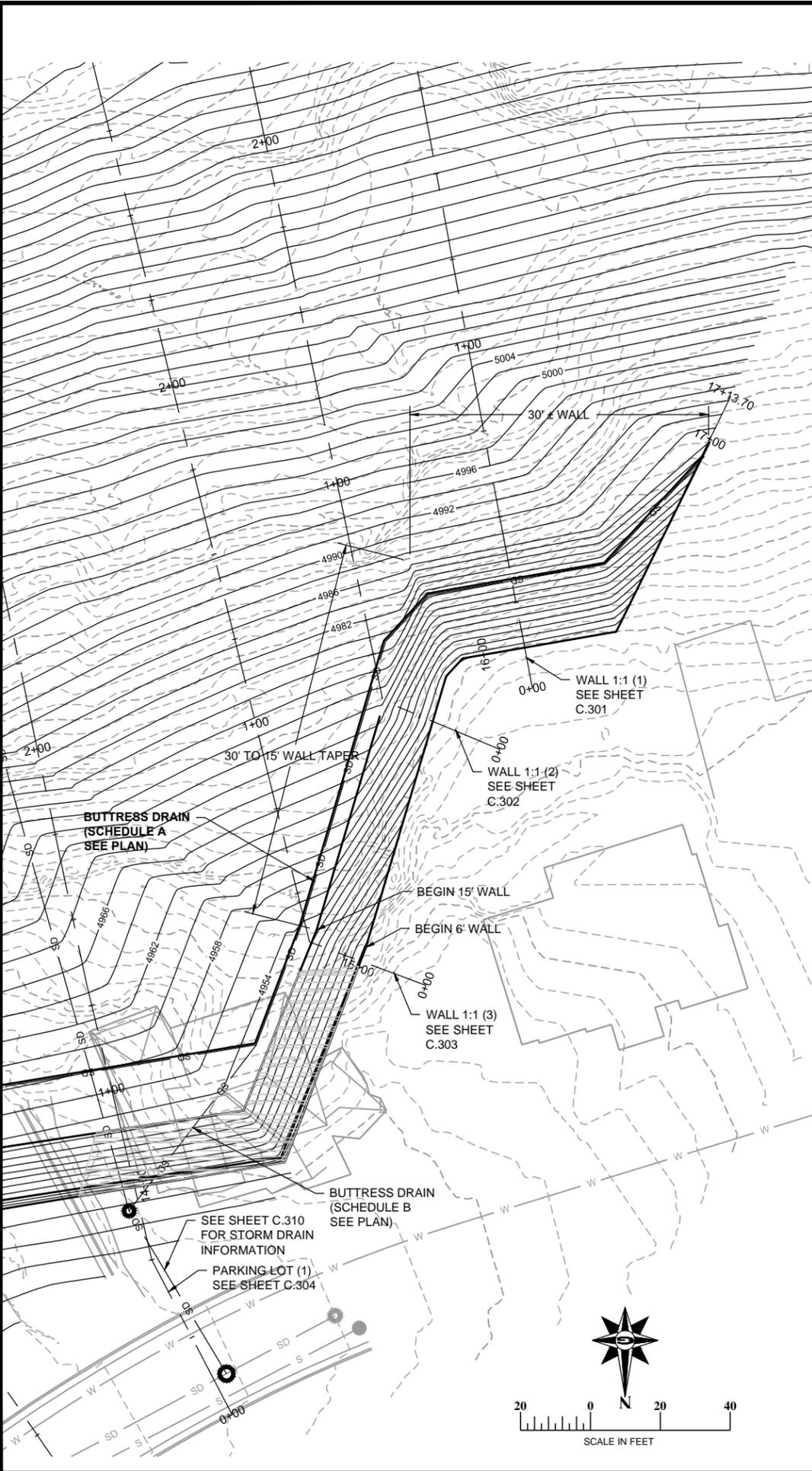
DATE: FEBRUARY 2015
 DRAWING NAME: W101 WALL
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

WALL PROFILE STA: 09+80 TO 14+50
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: **B**
 PROJ. # GEO.021

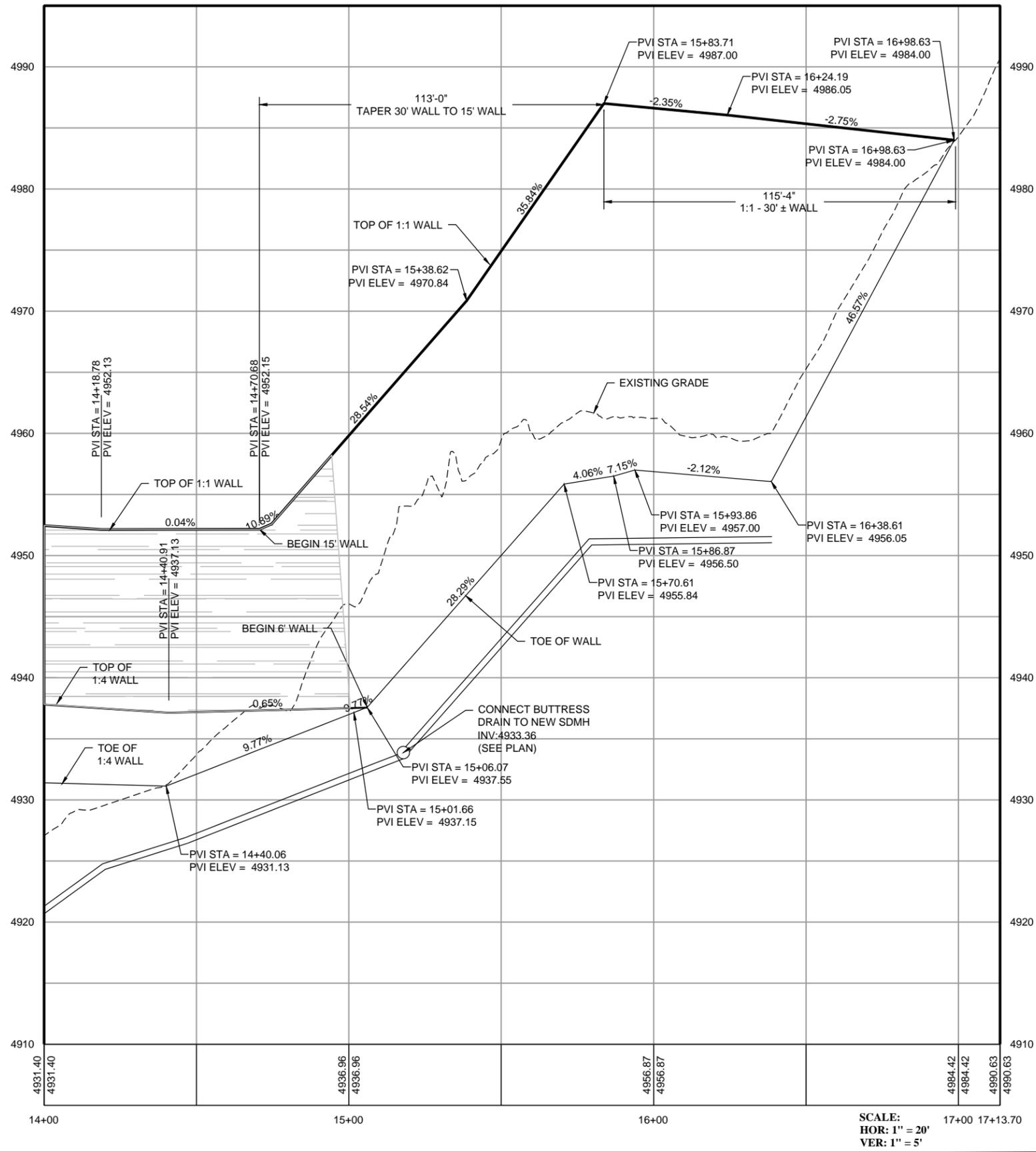
W.101

SCALE:
 HOR: 1" = 20'
 VER: 1" = 5'



WWW W/ SCULPTED ROCK FINISH OPTION

WALL 1
STA: 14+00 TO 17+14



SEE SHEET W.101

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REV	DATE	BY	COMMENTS
B	2/19/15	JM	ADD WALL FACING OPTIONS

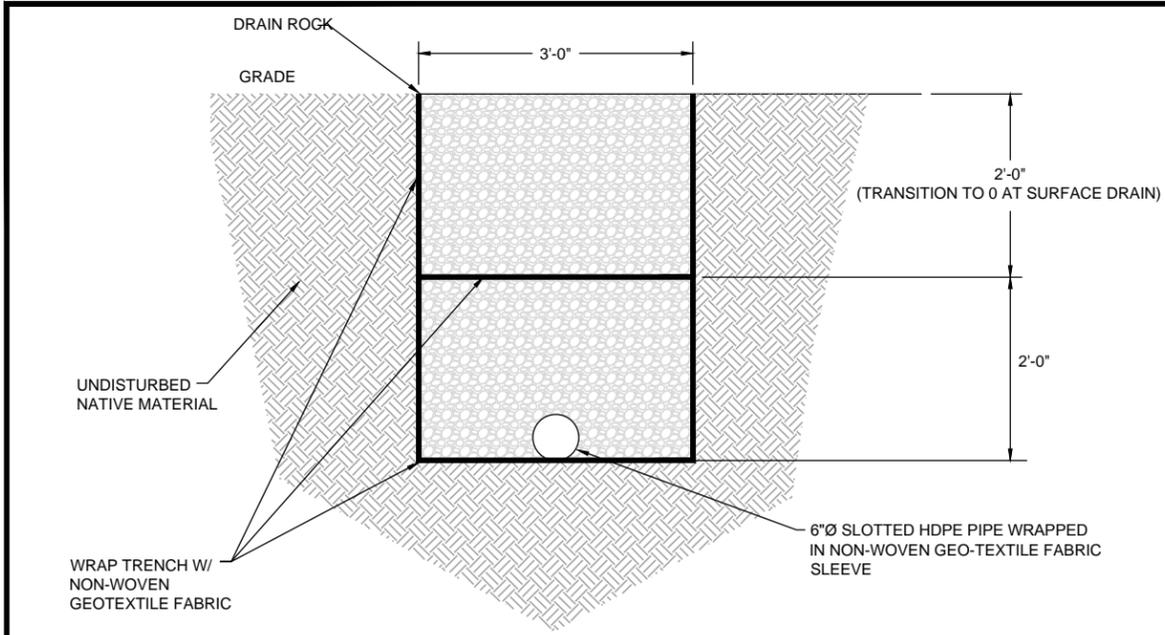
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DESIGNED/DRAWN BY: AL
CHECKED: APPROVED:

WALL PROFILE STA: 14+00 TO 17+14
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

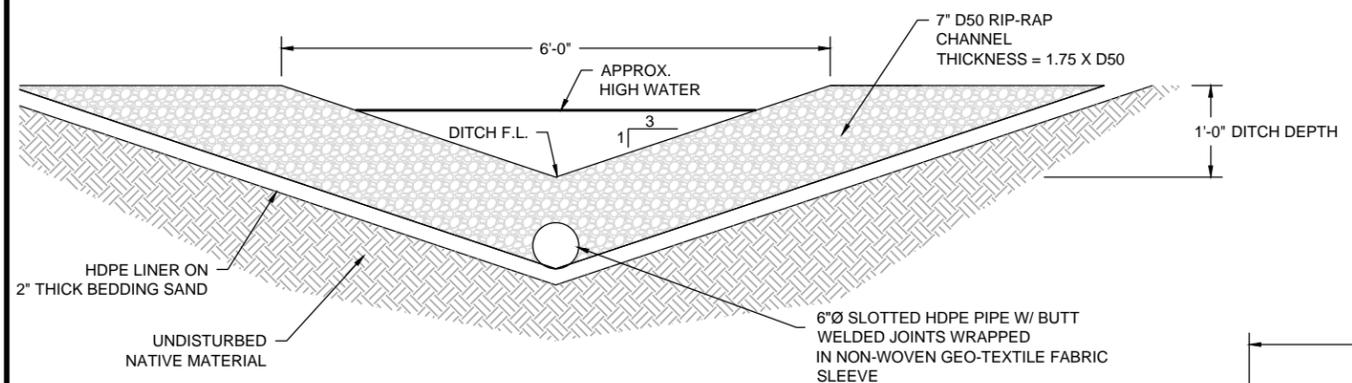
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PROJ. # GEO.021

W.102

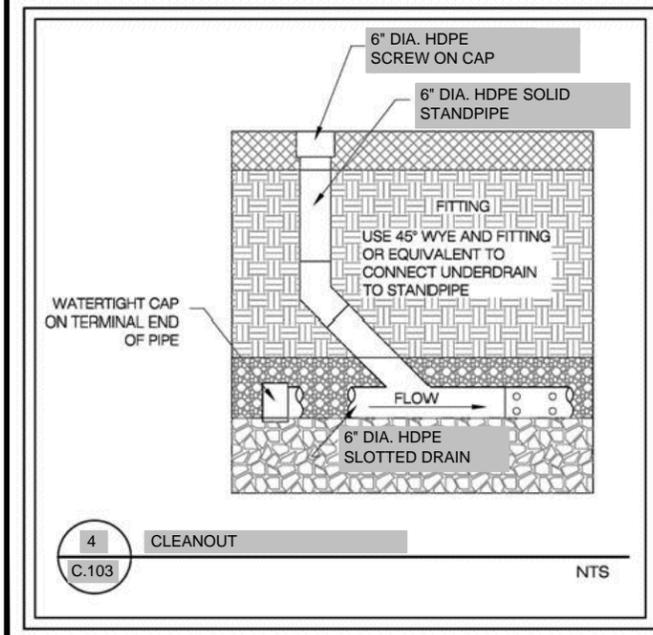
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HOR: 1" = 20'
VER: 1" = 5'



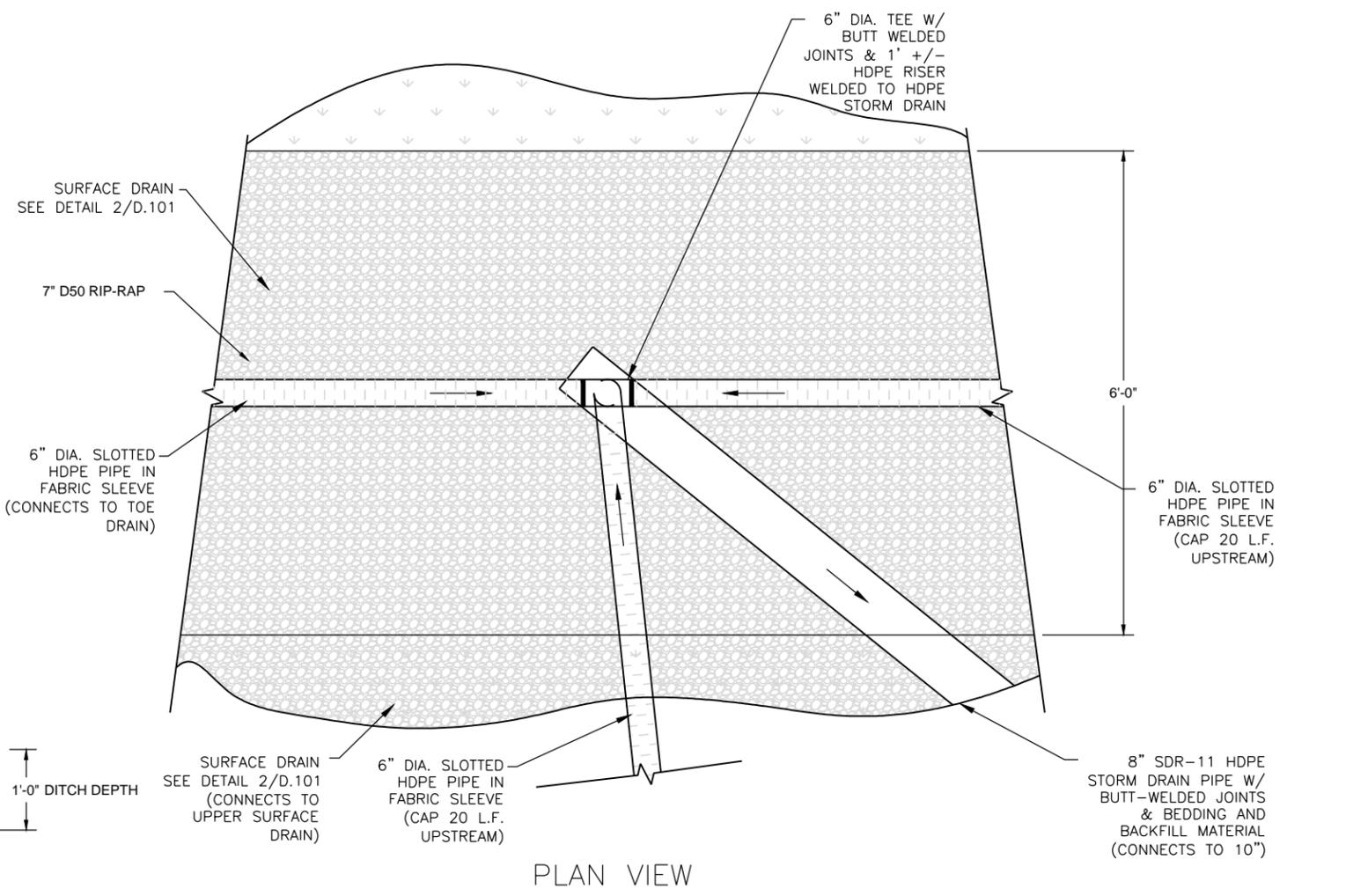
TOE DRAIN
SCALE: N.T.S. 1 C.103



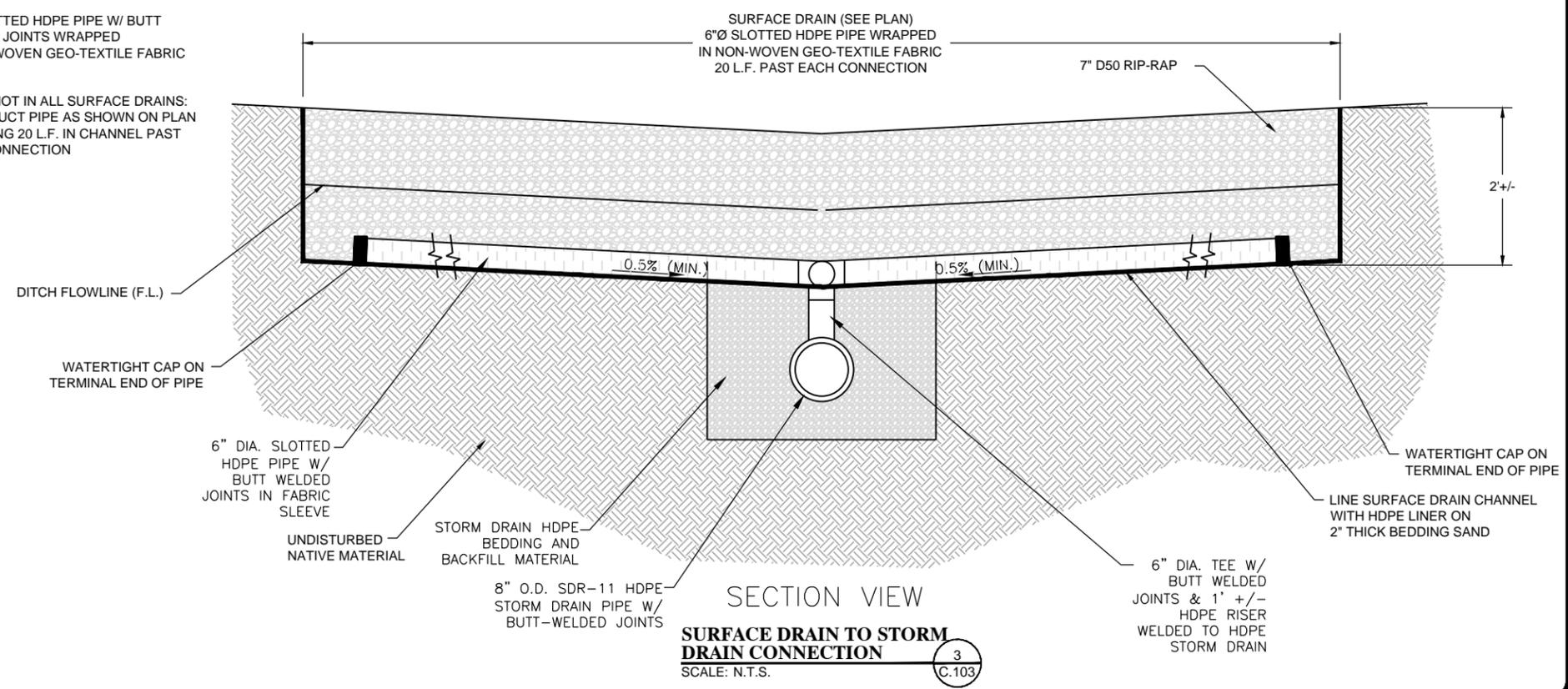
SURFACE DRAIN
SCALE: N.T.S. 2 C.103



CLEANOUT
SCALE: N.T.S. 4 C.103



PLAN VIEW



SURFACE DRAIN TO STORM DRAIN CONNECTION
SCALE: N.T.S. 3 C.103

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DATE: FEBRUARY 2015
DRAWING NAME: Z:_CAD PLANSET
D.L.O.T.
DESIGNED/DRAWN BY: AL
CHECKED: APPROVED:

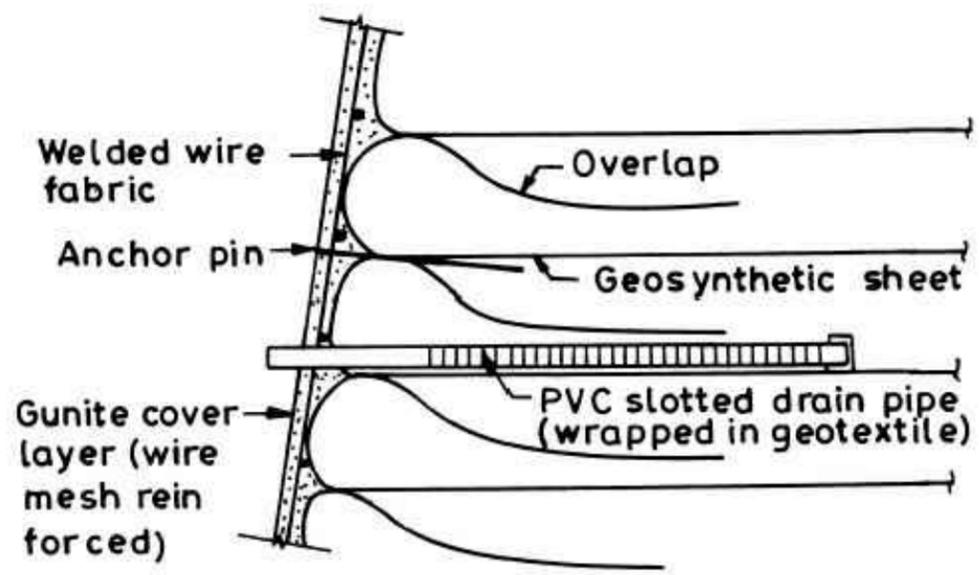
1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DETAILS
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
NORTH SALT LAKE, UTAH

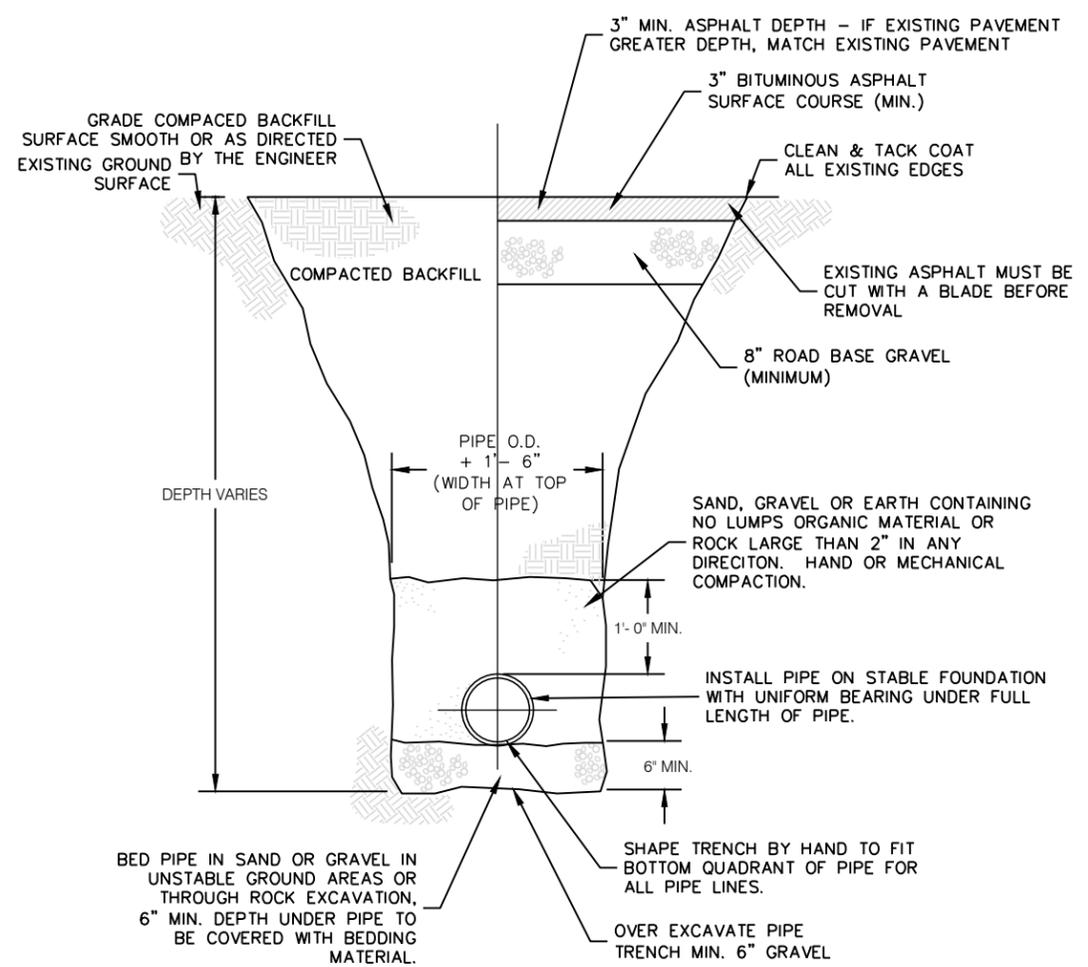
REVISION: A

PROJ. # GEO.021

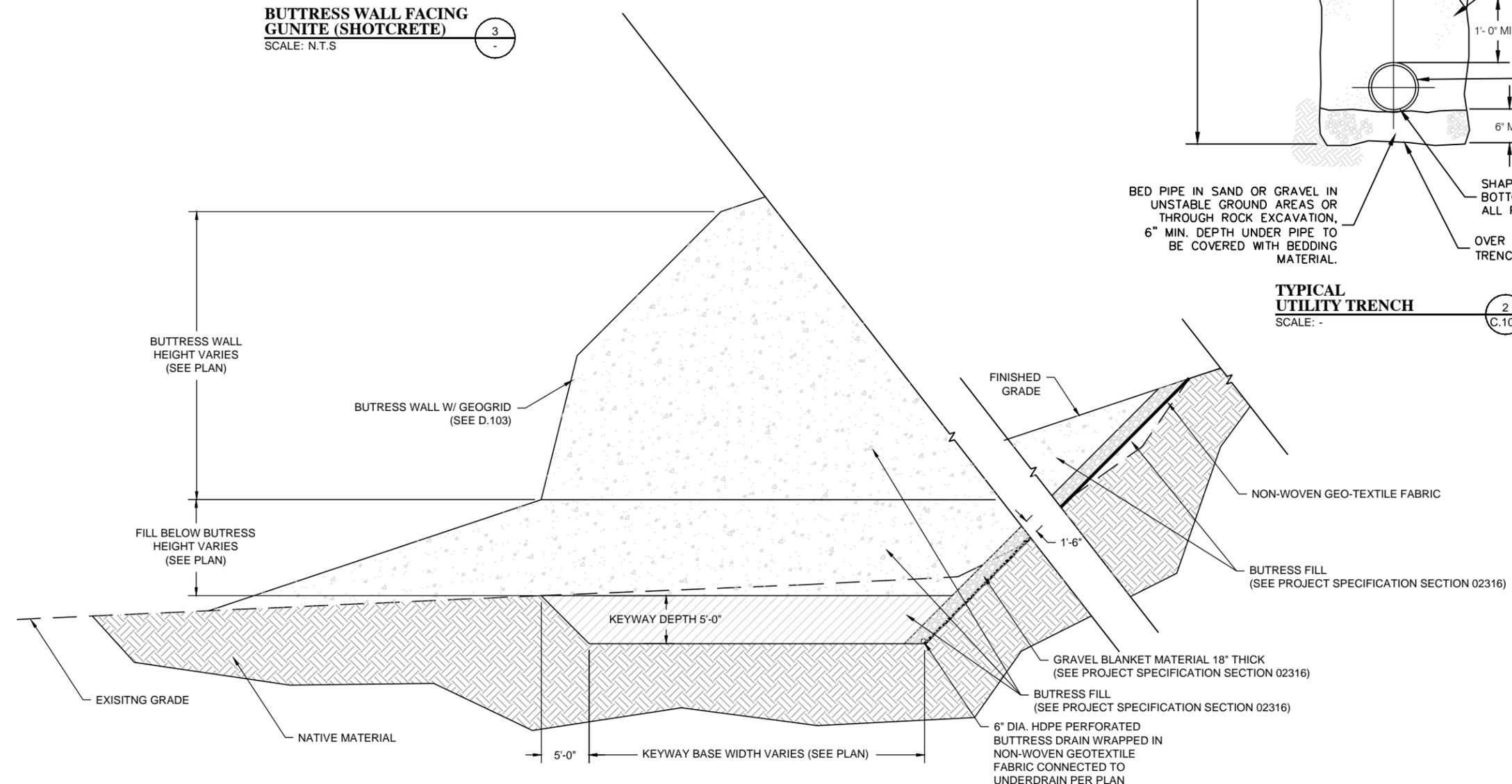
D.101



BUTRESS WALL FACING GUNITE (SHOTCRETE)
SCALE: N.T.S. 3



TYPICAL UTILITY TRENCH
SCALE: - 2
C.103



BUTRESS KEYWAY & GRAVEL BLANKET DETAIL
SCALE: N.T.S. 1

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DATE	REVISIONS
FEBRUARY 2015 <td>REVISIONS</td>	REVISIONS
DESIGNED BY: AL	BY/DATE
CHECKED BY: AL	COMMENTS
APPROVED BY:	

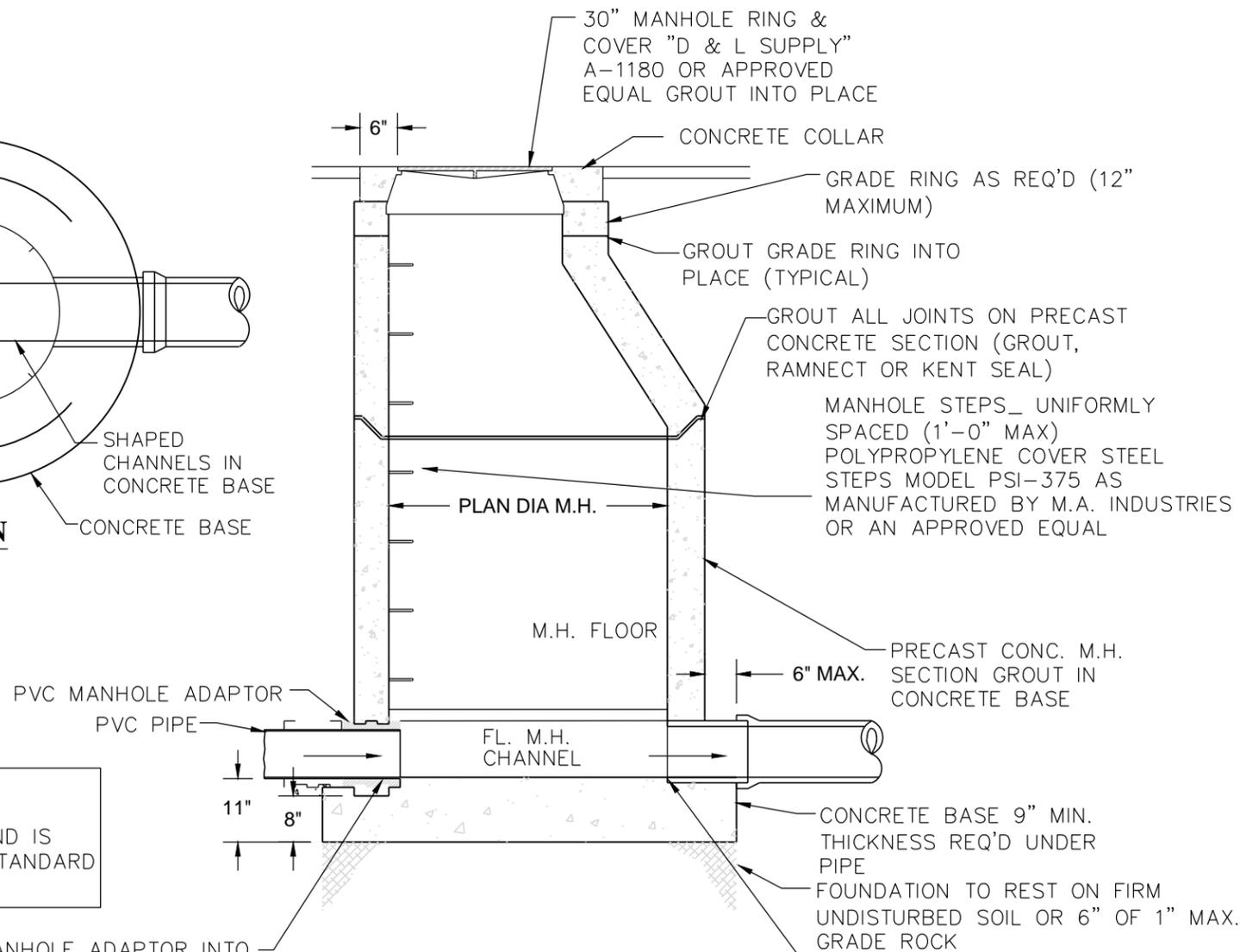
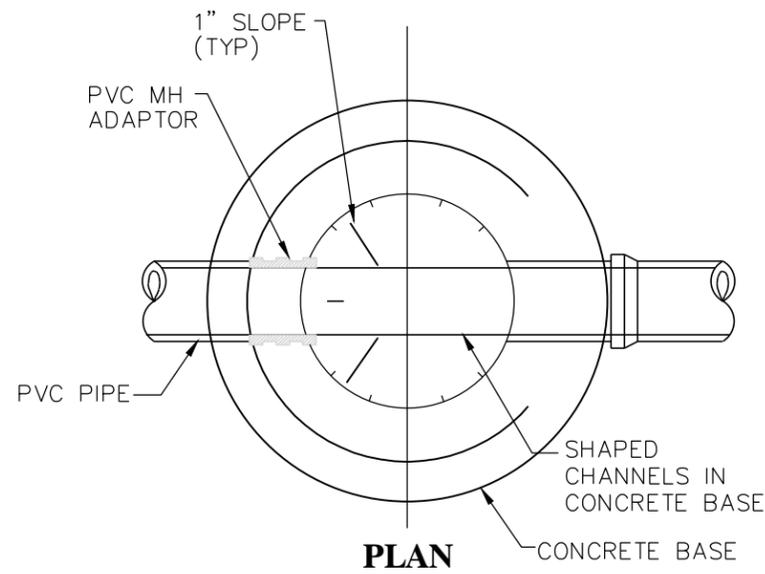
1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DETAILS
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

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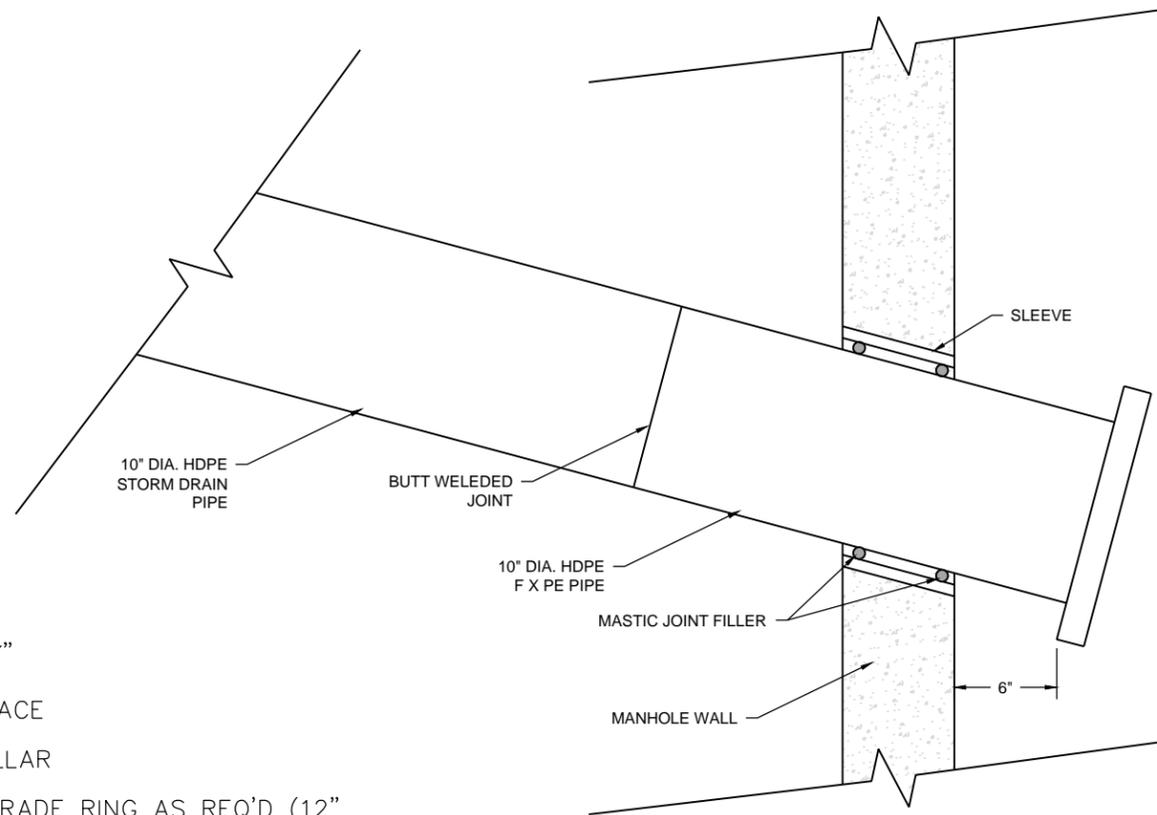
PROJ. # GEO.021

D.102



TYPICAL MANHOLE
SCALE: N.T.S.

1
-



HDPE PIPE TO MANHOLE CONNECTION DETAIL
SCALE: N.T.S.

2
.

NOTE:
RUBBER BOOT JOINTS WITH STAINLESSSTEEL CONNECTION BAND IS ACCEPTABLE SUBSTITUTES FOR STANDARD JOINTS SHOWN

PVC MANHOLE ADAPTOR INTO PLACE THEN SHAPE M.H. FLOOR & FL OF CHANNEL TO MEET PVC PIPE

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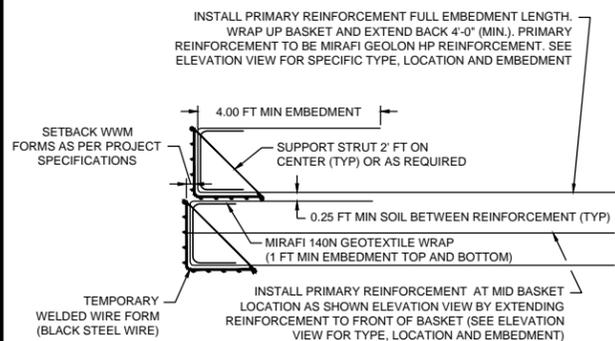
REV	DATE	BY	COMMENTS

DATE: FEBRUARY 2015
 DRAWING NAME: Z:\CAD\PLANSET
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 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

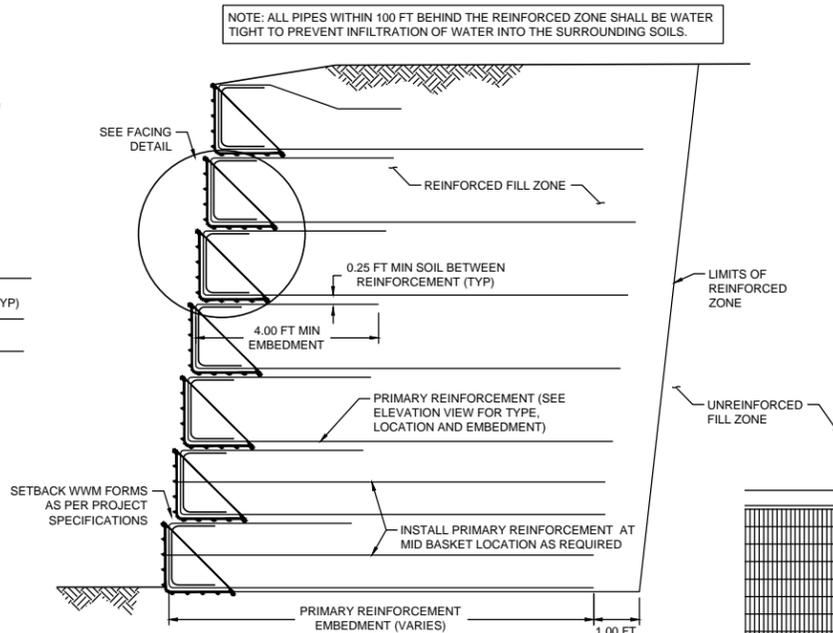
1" SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DETAILS
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: A
 PROJ. # GEO.021
D.104

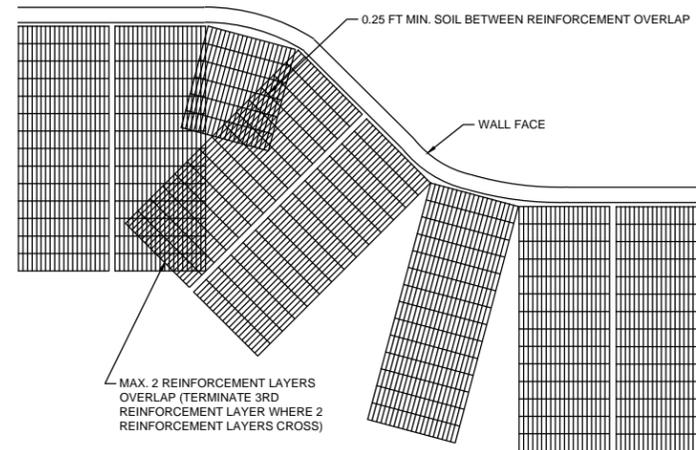


FACING DETAIL - TYPE A
(SCALE: 1" = 2'-0")

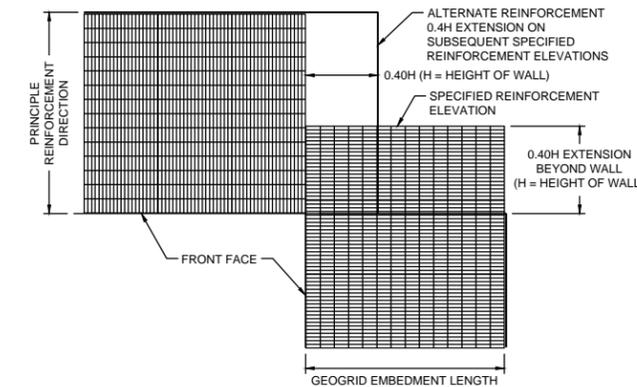


NOTE: FOUNDATION REMEDIATION AS REQUIRED BY ON-SITE GEOTECHNICAL ENGINEER TO OBTAIN STABLE WORKING PLATFORM MEETING THE PARAMETERS IN NOTE 5.0 ON RW1. VERIFICATION OF BEARING CAPACITY (SEE ELEVATION VIEW) MUST BE SUBMITTED BY THE ON-SITE GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTION.

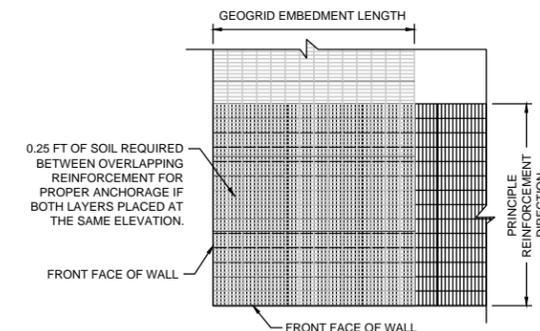
TYPICAL WWM MSE WALL CROSS SECTION - TYPE A
(SCALE: 1" = 2'-0")



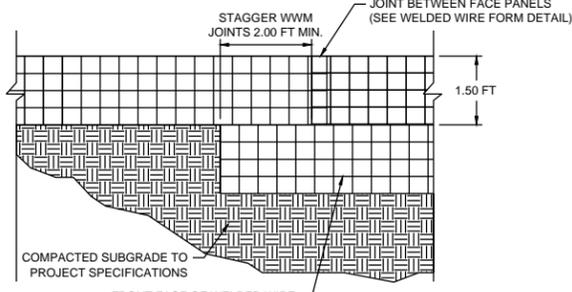
PRIMARY REINFORCEMENT PLACEMENT ON CURVES DETAIL
(N.T.S.)



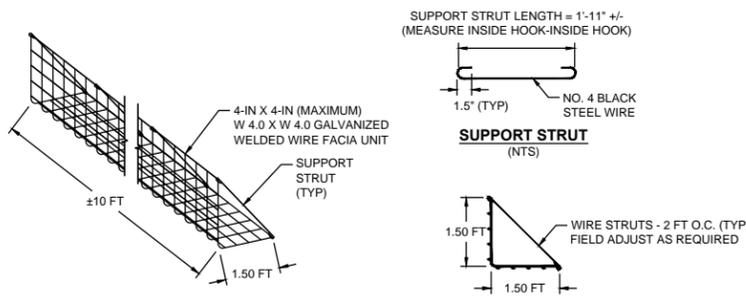
INSIDE CORNER REINFORCEMENT LAYOUT DETAIL
(N.T.S.)



OUTSIDE CORNER REINFORCEMENT LAYOUT DETAIL
(N.T.S.)

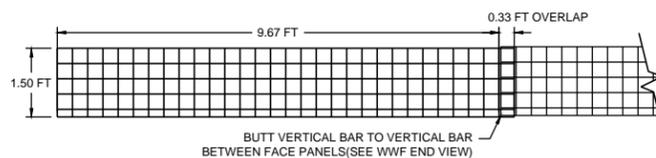


STEP DETAIL
(SCALE: 1" = 2'-0")



WELDED WIRE FORM - ISOMETRIC VIEW
(N.T.S.)

WELDED WIRE FACIA END VIEW



WELDED WIRE FORM OVERLAP - PLAN VIEW

- NOTES:
- SLOPE FACING TO CONSIST OF PREFABRICATED STEEL WWM, 4 x 4 - W4.0 x W4.0 FORMS.
 - ALL FORMS AND STRUTS WILL BE FABRICATED FROM GALVANIZED STEEL WIRE.
 - STEEL WIRE AND STRUTS SHALL COMPLY WITH ASTM A82. FABRICATION SHALL MEET ASTM A185.
 - OVERALL LENGTH OF WIRE FORMS IS 10.00 FT. EFFECTIVE CONSTRUCTED LENGTH IS 9.67 FT WITH 0.33 FT OVERLAP AT ENDS.

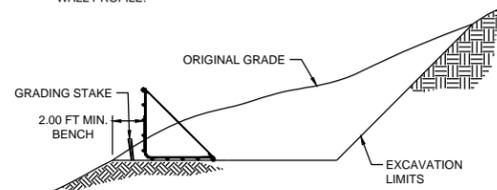
WELDED WIRE FORM DETAIL
(SCALE: 1" = 2'-0")

REV	DATE	BY	COMMENTS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

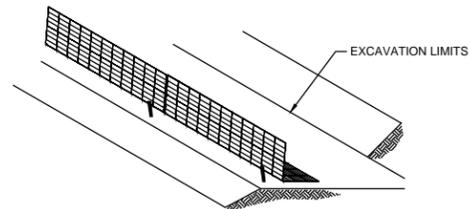
DATE: FEBRUARY 2015	DESIGNED/DRAWN BY: AL	CHECKED: APPROVED:
DRAWING NAME: Z:_CAD PLANSET	D.LOE	

- EXCAVATE FOR LEVEL BASE TO A LENGTH ADEQUATE FOR REINFORCEMENT EMBEDMENT.
- SET GRADING STAKES AT A 0.50 FT OFFSET TO FACILITATE PROPER BASKET ALIGNMENT.
- EMBED BOTTOM BASKET AT FACE OF WALL AS SHOWN ON WALL PROFILE.



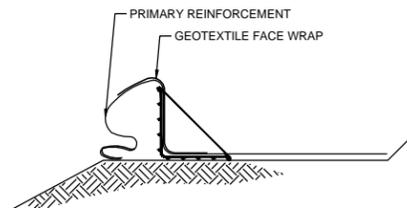
STEP 1

- FOR THE FIRST COURSE OF THE WALL, ALIGN BASKETS WITHOUT SPACES.
- INSTALL STRUTS AT ABOUT 2.00 FT SPACING.



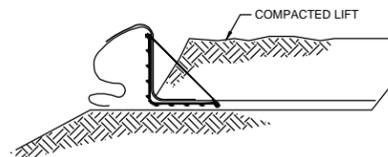
STEP 2

- PLACE PRIMARY SOIL REINFORCEMENT AT ELEVATIONS AS SHOWN IN PROFILE DRAWING.
- DRAP REINFORCEMENT OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (4.00 FT MIN.).
- PLACE GEOTEXTILE (MIRAFI 140N) FACING WRAP.
- DRAP GEOTEXTILE OVER BASKET ALLOWING FOR THE REQUIRED WRAP EMBEDMENT (1.00 FT MIN.).
- INSTALL STRUTS AT REQUIRED SPACING (2-FT MAX).



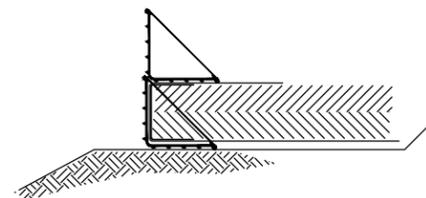
STEP 3

- BACKFILL CAREFULLY TO ABOUT 1" - 2" ABOVE THE TOP HORIZONTAL BASKET WIRE OR AS REQUIRED BY SPECIFICATION.
- COMPACT TO REQUIRED DENSITY.



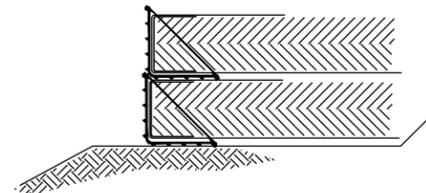
STEP 4

- PULL GEOTEXTILE WRAP AND SOIL REINFORCEMENT OVER COMPACTED FILL AND ANCHOR WITH SOIL.
- SLIDE THE NEXT BASKET BACK AGAINST THE PRONGS OF THE LOWER BASKET USING RUNNING BOND INSTALLATION (STAGGERED).
- INSTALL SECOND COURSE OF WELDED WIRE FORM.



STEP 5

- REPEAT STEPS 2 THRU 5 UNTIL DESIRED HEIGHT OF WALL IS REACHED.



STEP 6

REV	DATE	BY	COMMENTS
0			

REVISIONS

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015	CHECKED: AL	APPROVED:
DRAWING NAME: Z:\CAD PLANSET	DESIGNED/DRAWN BY: AL	
D.L.O.E.		

DETAILS
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

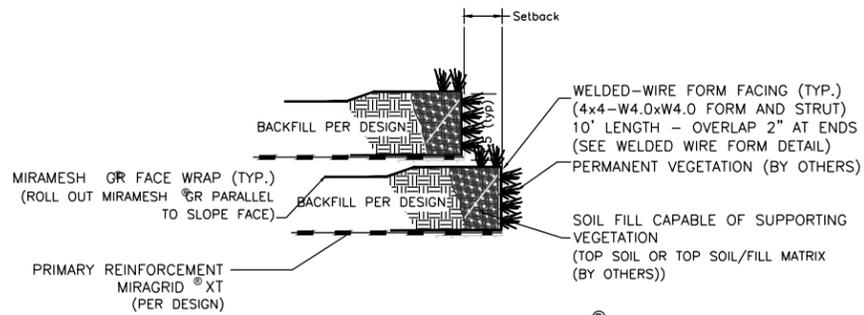
D.106

Note:
MIRAMESH® GR UV RESISTANCE RATING OF 99% AT 500 HOURS BASED ON ASTM D4355. LIFE EXPECTANCY - 75 TO 100 YEARS



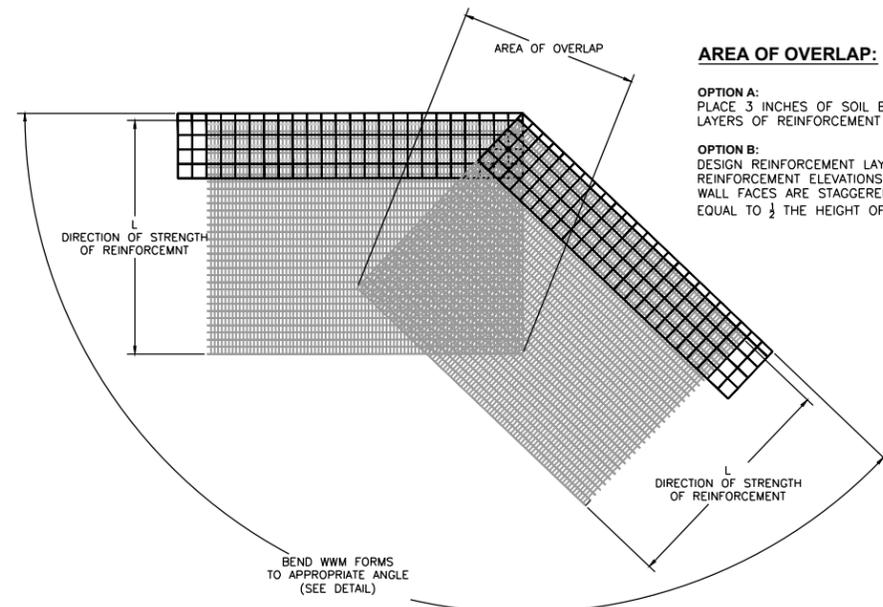
MIRAMESH® GR - DIMENSION DETAIL

Setback (inches)	Angle(deg) from horiz	Slope
3	81	1H:6V
4	77	
5	74	
6	72	1H:3V
7	69	
8	66	
9	63	1H:2V
10	61	
12	56	
15	50	
18	45	1H:1V



FACING DETAIL - MIRAMESH® GR

NTS



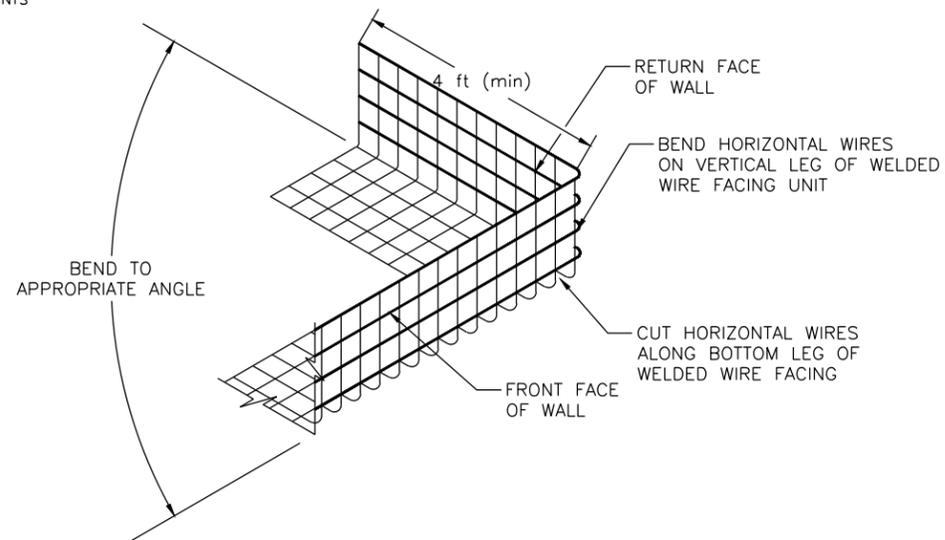
AREA OF OVERLAP:

OPTION A:
PLACE 3 INCHES OF SOIL BETWEEN OVERLAPPING LAYERS OF REINFORCEMENT

OPTION B:
DESIGN REINFORCEMENT LAYOUT SUCH THAT REINFORCEMENT ELEVATIONS ALONG ADJACENT WALL FACES ARE STAGGERED BY A DISTANCE EQUAL TO 1/2 THE HEIGHT OF THE WWM FORM.

PLAN VIEW - OUSTSIDE CORNER DETAIL

NTS

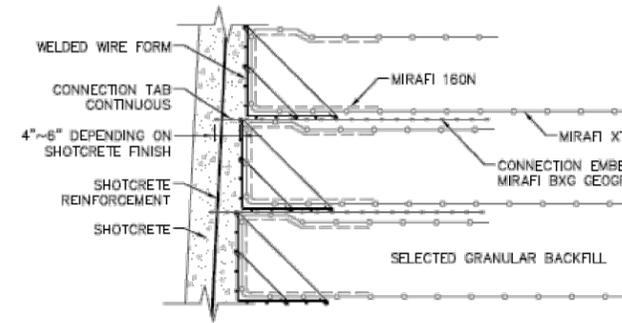


FACING DETAIL - CORNER

NTS

TenCate Mirafi Wirewall with Shotcrete Face

Shotcrete Face Connection Detail



OPTION 1: REBAR REINFORCEMENT:

INSTALL VERTICAL BAR THROUGH BXG GEOGRID OPENNING.

OPTION 2: WIRE MESH REINFORCEMENT:

CUT BXG GEOGRID PERPENDICULAR TO WALL FACE AT A DESIGN SPACING ALLOWING BXG GEOGRID PASSING THROUGH WIRE MESH.

WELDED WIRE AND SHOTCRETE FACING CONCEPTUAL DETAILS

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SAMPLE OF ROCK SCULPTING COLOR & FINISH

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REV	DATE	BY	COMMENTS

REVISIONS

DATE: FEBRUARY 2015
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 D:\07
 DESIGNED/DRAWN BY: AL
 CHECKED: APPROVED:

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
 ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

DATE: FEBRUARY 2015	DESIGNED/DRAWN BY: AL	CHECKED: APPROVED:
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DETAILS
 NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT
 NORTH SALT LAKE, UTAH

REVISION: A

PROJ. # GEO.021

D.107

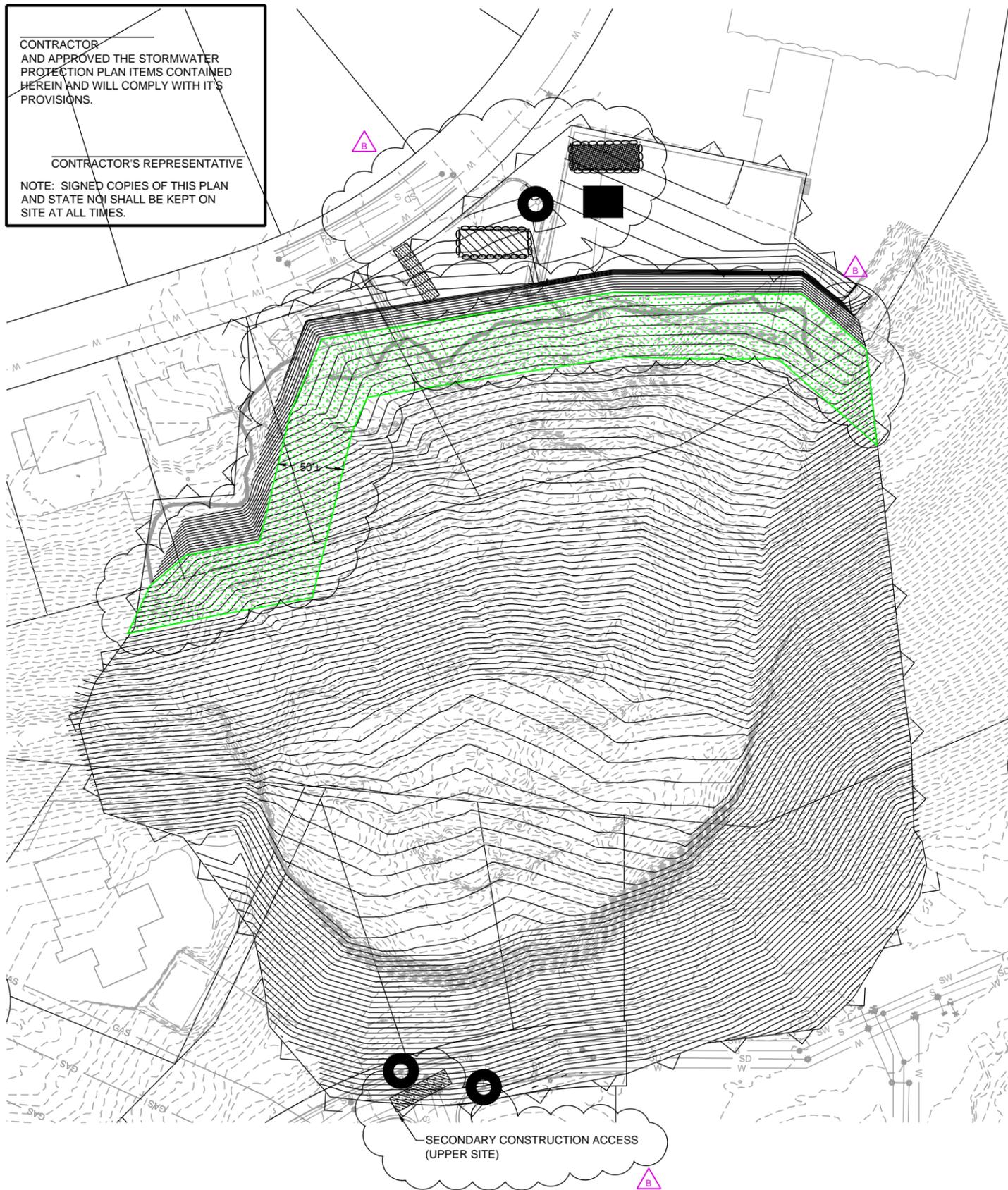
LEGEND

-  -BMP SILT FENCE ER.02
-  -BMP INSPECTION AND MAINTENANCE, BMP STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA ER.01-ER.02
-  -TOPSOIL STOCKPILE AREA (OR AS DIRECTED BY OWNER) BMP EARTH BERM BARRIER ER.01
-  -BMP MATERIALS STORAGE, BMP VEHICLE AND EQUIPMENT FUELING, BMP CONCRETE WASTE MANAGEMENT, BMP PORTABLE TOILETS, BMP EARTH BERM BARRIER ER.01-ER.02
-  -BMP DUST CONTROLS, BMP GRADING PRACTICES, BMP CONTAMINATED OR ERODIBLE SURFACE AREAS, REPOSITORY STOCKPILE AREA (OR AS DIRECTED BY OWNER), BMP EARTH BERM BARRIER ER.01-ER.02
-  -BMP INLET PROTECTION
-  -BMP EROSION CONTROL MAT (PLACED ALONG TOP OF WALL 50' WIDE +/-)

CONTRACTOR AND APPROVED THE STORMWATER PROTECTION PLAN ITEMS CONTAINED HEREIN AND WILL COMPLY WITH IT'S PROVISIONS.

CONTRACTOR'S REPRESENTATIVE

NOTE: SIGNED COPIES OF THIS PLAN AND STATE NOI SHALL BE KEPT ON SITE AT ALL TIMES.



EROSION CONTROL NOTES

1. AT ALL TIMES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING EROSION DUE TO WIND AND RUNOFF. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR MAINTAINING THE EROSION CONTROL FACILITIES SHOWN ON THE PLAN.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING DRAINAGE AND EROSION CONTROL FACILITIES AS REQUIRED. STREETS SHALL BE KEPT CLEAN OF DEBRIS FROM TRAFFIC FROM THE SITE.
3. CONTRACTOR SHALL USE VEHICLE TRACKING CONTROL AT ALL LOCATIONS WHERE VEHICLES WILL ENTER OR EXIT THE SITE. CONTROL FACILITIES WILL BE MAINTAINED WHILE CONSTRUCTION IS IN PROGRESS, MOVED WHEN NECESSARY, AND REMOVED WHEN THE SITE IS PAVED.
4. STORM DRAIN INLET PROTECTION DEVICES SHALL BE INSTALLED IMMEDIATELY UPON INDIVIDUAL INLETS BECOMING FUNCTIONAL.
5. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER MANAGEMENT PLAN AND THE STATE OF UTAH DISCHARGE PERMIT SYSTEM. GENERAL PERMIT FOR "STORM DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY" AND BECOME FAMILIAR WITH THEIR CONTENT.
6. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, ETC.) SHALL BE DISPOSED IN A MANNER THAT PREVENTS CONTACT WITH STORM WATER DISCHARGES FROM THE SITE.
7. FUGITIVE DUST AREAS SHALL BE CONTROLLED BY SPRAYING WATER ON THE DRY AREAS OF THE SITE. CONTRACTOR SHALL SUPPLY THE CITY WITH A DUST CONTROL PLAN AT THE TIME OF THE PRE-CONSTRUCTION MEETING.
8. NO RUBBISH, TRASH, GARBAGE OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
9. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) DUE TO GRADE CHANGES OR OTHER UNFORESEEN CONDITIONS DURING DEVELOPMENT OF THE PROJECT.
11. ALL INLETS SHALL HAVE TEMPORARY INLET CONTROL.
12. TEMPORARY SANITATION FACILITIES ARE REQUIRED.
13. CONTRACTOR SHALL COORDINATE WITH PUBLIC WORKS INSPECTOR ON ALL REQUESTS TO MODIFY OR MAKE CHANGES TO SWPPP/EROSION CONTROL PLAN.

NOTES

- 1 - ALL PROPOSED AND EXISTING INLETS ARE TO BE PROTECTED. SEE BMP INLET PROTECTION C.55
 - BMP CATCH BASIN CLEANING, BMP INSPECTION AND MAINTENANCE FOR INLET PROTECTION DETAILS.
 - 2 - EXISTING GROUND COVER = 50% SEE BMP PRESERVATION OF EXISTING VEGETATION.
 - 3 - SEQUENCE OF CONSTRUCTION
- PHASE I**
1. INSTALL STABILIZED CONSTRUCTION ENTRANCES.
 2. CONSTRUCT SILT FENCES ON THE SITE.
 3. CONSTRUCT SEDIMENTATION PONDS WHERE NEEDED PER DISCRETION OF CONTRACTOR. SIZE TO BE DETERMINED BY ENGINEER.
 4. HALT ALL ACTIVITIES AND CONTACT CIVIL ENGINEERING CONSULTANT TO PERFORM INSPECTION OF BMP'S. GENERAL CONTRACTOR SHALL SCHEDULE AND CONDUCT STORM WATER PRE-CONSTRUCTION MEETING WITH ENGINEER AND ALL GROUND DISTURBING CONTRACTORS BEFORE PRECEDING WITH CONSTRUCTION. PREPARE TEMPORARY PARKING AND STORAGE AREAS.
 5. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. STORM DRAIN WATER DURING CONSTRUCTION WILL BE LOCATED IN RETENTION POND.
 7. BEGIN GRADING THE SITE.
- PHASE II**
1. MAINTAIN SILT FENCE, INLET PROTECTION AND STABILIZED CONSTRUCTION EXITS INSTALLED DURING PHASE #1.
 2. COMPLETE PERMANENT DETENTION POND CONSTRUCTION.
 3. BEGIN CONSTRUCTION OF UNDERGROUND UTILITIES.
 4. INSTALL INLET PROTECTION AT NEW STORM DRAIN INLETS, AS INSTALLED.
 8. INSTALL PERMANENT VEGETATION AND PLANT MATERIALS.
 9. REMOVE ALL TEMPORARY EROSION & SEDIMENTATION CONTROL DEVICES (ONLY AFTER FINAL STABILIZATION HAS BEEN ACHIEVED).
 - 4 - DETAILS AND BMP'S ON DRAWINGS C.54-C.56 ARE INCORPORATED INTO THIS PLAN BY REFERENCE.

LAND DISTURBANCE NOTES

1. CONTRACTOR SHOULD PERFORM EARTHWORK IN ACCORDANCE WITH THE NORTH SALT LAKE CITY LAND DISTURBANCE ORDINANCE, THE CITY'S STANDARD SPECIFICATIONS, NORTH SALT LAKE CITY LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS, EROSION, SEDIMENT, REVEGETATION REQUIREMENTS, AND THE DUST CONTROL PLANS REQUIRED BY THE STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY.
2. THE CONTRACTOR WILL PERFORM EARTHWORK IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS OUTLINED IN THE LAND DISTURBANCE DESIGN AND CONSTRUCTION STANDARDS AND THE RECOMMENDED EARTHWORK SPECIFICATIONS FOUND IN THE REPORT OF GEOTECHNICAL ENGINEER, AND THE GEOTECHNICAL INVESTIGATION LOCATED IN THE PROJECT TECHNICAL SPECIFICATION. IN THE EVENT THERE IS A CONFLICT BETWEEN THE DOCUMENTS MENTIONED HEREIN AND NORTH SALT LAKE CITY'S EROSION AND SEDIMENT CONTROL REQUIREMENTS OR THE DUST CONTROL PLAN AS REQUIRED BY THE STATE OF UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY, NORTH SALT LAKE CITY'S REQUIREMENTS AND THE STATE REQUIREMENTS WILL CONTROL.
3. THE SEQUENCE OF CONSTRUCTION IS TO BE FOLLOWED.
4. SEDIMENTATION BMP'S SHOWN ON THE EROSION CONTROL AND SEDIMENT CONTROL PLANS TO BE INSTALLED WITHIN THE SAME WORKING DAY THE LAND DISTURBANCE OCCURS.
5. DUST CONTROL BMP'S ARE TO BE ON SITE AND IMPLEMENTED AS SOON AS LAND DISTURBANCE OCCURS. THE DUST CONTROL AS REQUIRED BY THE STATE OF UTAH AIR QUALITY PLAN IS TO BE SUBMITTED WITH THE GRADING PLAN. THE DEVELOPER IS RESPONSIBLE FOR CONTROLLING THE DUST PRODUCED AT HIS PROJECT AND SHALL PROVIDE THE NECESSARY MITIGATION TO KEEP THE DUST TO THE ACCEPTABLE LIMITS IDENTIFIED IN THE AIR QUALITY PERMIT OBTAINED FOR THE STATE OF UTAH, DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF AIR QUALITY.
6. ALL DISTURBED AREAS ARE TO BE REVEGETATED AND ARE TO RECEIVE REVEGETATION BMP'S INCLUDING EROSION CONTROL MATS AS SHOWN ON PLAN WITHIN 21 DAYS OF DISTURBANCE.
7. IF THE EXISTING GRADE IS DIFFERENT FROM WHAT IS SHOWN ON THIS GRADING PLAN, STOP WORK AND CONTACT THE TOWN OF VINEYARD, ENGINEERING DEPARTMENT. WORK IS TO REMAIN STOPPED UNTIL THE TOWN'S ENGINEERING DEPARTMENT PROVIDES A WRITTEN NOTICE TO RESUME WORK.
8. THE PROJECT OWNER IS RESPONSIBLE FOR MAINTAINING THE STREETS, STORM DRAINS, AND CHANNELS, DITCHES AND SWALES FREE FROM DEBRIS, SOIL, MUD, OR OTHER MATERIAL THAT WOULD CAUSE A PUBLIC SAFETY CONCERN, VIOLATE THE TOWN'S UPDES PERMIT, STATE OR FEDERAL LAWS, OR PREVENT THE FACILITY FROM OPERATING.
9. ALL CONCRETE TRUCKS ARE TO USE THE DESIGNATED WASHOUT AREA(S). FAILURE TO COMPLY WILL RESULT IN A WORK STOP AND THE OFFENDER COULD BE GUILTY OF A CLASS C MISDEMEANOR.
10. L.O.D. BARRIERS ARE TO BE IN PLACE AND MAINTAINED UNTIL WRITTEN NOTIFICATION IS RECEIVED FROM THE ENGINEERING DEPARTMENT. THE OWNER IS RESPONSIBLE FOR MAINTAINING L.O.D. BARRIERS.
11. IF DISTURBANCE OCCURS OUTSIDE THE L.O.D. WORK WILL STOP AND REMAIN STOPPED UNTIL THE WRITTEN RESPONSE IS RECEIVED FROM THE TOWN.
12. THE OWNER IS TO BE RESPONSIBLE FOR ADDITIONAL GRADING INFORMATION AS REQUIRED THROUGHOUT THE REMAINDER OF THE PROJECT.
13. SILT FENCES TO BE INSTALLED AT ALL DOWN GRADE SLOPES AND SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.
14. ADDITIONAL CONSTRUCTION ENTRANCES SHALL BE REQUIRED ON PHASE LINE FOR NON-CONCURRENT CONSTRUCTION.

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NSL
ENGINEERING

REV#	DATE	BY	COMMENTS
B	01/19/15	JM	REVISE SWPPP & SHOW EROSION CONTROL MAT

DATE: FEBRUARY 2015
DRAWING NAME: ER.101 SWPPP
DESIGNED/DRAWN BY: AL
CHECKED: APPROVED:

1" SCALE MEASURES 1" ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR HALF SIZE SHEETS

SWPPP

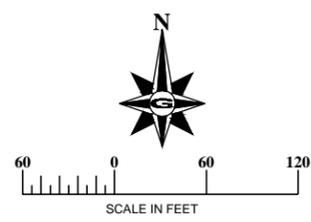
NORTH SALT LAKE LANDSLIDE STABILIZATION PROJECT

NORTH SALT LAKE, UTAH

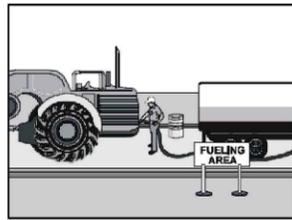
REVISION: **B**

PROJ. # **GEO.021**

ER.101



BMP: VEHICLE AND EQUIPMENT FUELING



DESCRIPTION:
PREVENT FUEL SPILLS AND LEAKS, AND REDUCE THEIR IMPACTS TO STORM WATER BY USING OFF-SITE FACILITIES, FUELING IN DESIGNATED AREAS ONLY, ENCLOSING OR COVERING STORED FUEL, IMPLEMENTING SPILL CONTROLS, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

INSTALLATION / APPLICATION:

- USE OFF-SITE FUELING STATIONS AS MUCH AS POSSIBLE. FUELING VEHICLES AND EQUIPMENT OUTDOORS OR IN AREAS WHERE FUEL MAY SPILL/LEAK ONTO PAVED SURFACES OR INTO DRAINAGE PATHWAYS CAN POLLUTE STORM WATER. IF YOU FUEL A LARGE NUMBER OF VEHICLES OR PIECES OF EQUIPMENT, CONSIDER USING AN OFF-SITE FUELING STATION. THESE BUSINESSES ARE BETTER EQUIPPED TO HANDLE FUEL SPILLS PROPERLY. PERFORMING THIS WORK OFF-SITE CAN ALSO BE ECONOMICALLY BY ELIMINATING THE NEED FOR A SEPARATE FUELING AREA AT YOUR SITE.
- IF FUELING MUST OCCUR ON-SITE, USE DESIGNATED AREAS, LOCATED AWAY FROM DRAINAGE COURSES, TO PREVENT THE RUN-ON OF STORM WATER AND THE RUNOFF OF SPILLS. DISCOURAGE "TOPPING-OFF" OF FUEL TANKS.
- ALWAYS USE SECONDARY CONTAINMENT, SUCH AS A DRAIN PAN OR DROP CLOTH, WHEN FUELING TO CATCH SPILLS/LEAKS. PLACE A STOCKPILE OF SPILL CLEANUP MATERIALS WHERE IT WILL BE READILY ACCESSIBLE. USE ADSORBENT MATERIALS ON SMALL SPILLS. RATHER THAN HOSEING DOWN OR BURNING THE SPILL, REMOVE THE ADSORBENT MATERIALS PROMPTLY AND DISPOSE OF PROPERLY.
- CARRY OUT ALL FEDERAL AND STATE REQUIREMENTS REGARDING STATIONARY ABOVE GROUND STORAGE TANKS. (40 CF. SUB. J) AVOID MOBILE FUELING OF MOBILE CONSTRUCTION EQUIPMENT AROUND THE SITE. RATHER, TRANSPORT THE EQUIPMENT TO DESIGNATED FUELING AREAS. WITH THE EXCEPTION OF TRACKED EQUIPMENT SUCH AS BULLDOZERS AND PERHAPS FORKTRUCKS, MOST VEHICLES SHOULD BE ABLE TO TRAVEL TO A DESIGNATED AREA WITH LITTLE TO NO TRAIN EMPLOYEES AND SUBCONTRACTORS IN PROPER FUELING AND CLEANUP PROCEDURES.

LIMITATIONS:
• SEDUCING VEHICLES/EQUIPMENT OFF-SITE SHOULD BE DONE IN CONJUNCTION WITH STABILIZED CONSTRUCTION ENTRANCE.

MAINTENANCE:
• KEEP AMPLE SUPPLIES OF SPILL CLEANUP MATERIALS ON-SITE.
• INSPECT FUELING AREAS AND STORAGE TANKS ON A REGULAR SCHEDULE.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER WASTE

- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: PRESERVATION OF EXISTING VEGETATION



GENERAL DESCRIPTION:
CAREFULLY PLANNED PRESERVATION OF EXISTING VEGETATION MINIMIZES THE POTENTIAL OF REMOVING OR INJURING EXISTING TREES, VINES, SHRUBS, AND/OR GRASSES THAT SERVE AS EROSION CONTROLS.

APPLICATIONS:

- THIS TECHNIQUE IS APPLICABLE TO ALL TYPES OF SITES. AREAS WHERE PRESERVING VEGETATION CAN BE PARTICULARLY BENEFICIAL ARE FLOODPLAINS, WETLANDS, STREAM BANKS, STEEP SLOPES, AND OTHER AREAS WHERE EROSION CONTROLS WOULD BE DIFFICULT TO ESTABLISH, INSTALL, OR MAINTAIN.
- PREPARE LANDSCAPING PLANS WHICH INCLUDE AS MUCH EXISTING VEGETATION AS POSSIBLE AND STATE PROPER CARE DURING AND AFTER CONSTRUCTION.
- DEFINE AND PROTECT WITH BERMS, FENCING, SIGNS, ETC. A SETBACK AREA FROM VEGETATION TO BE PRESERVED.
- PROPOSE LANDSCAPING PLANS WHICH DO NOT INCLUDE PLANT SPECIES THAT COMPETE WITH THE EXISTING VEGETATION.
- DO NOT LOCATE CONSTRUCTION TRAFFIC ROUTES, SPOIL PILES, ETC. WHERE SIGNIFICANT ADVERSE IMPACT ON EXISTING VEGETATION MAY OCCUR.

LIMITATIONS:
• REQUIRES FORWARD PLANNING BY THE OWNER/DEVELOPER, CONTRACTOR AND DESIGN STAFF.
• FOR SITES WITH DIVERSE TOPOGRAPHY, IT IS OFTEN DIFFICULT AND EXPENSIVE TO SAVE EXISTING TREES WHILE GRADING THE SITE SATISFACTORILY FOR THE PLANNED DEVELOPMENT.
• MAY NOT BE COST EFFECTIVE WITH HIGH LAND COSTS.

MAINTENANCE:
• INSPECTION AND MAINTENANCE REQUIREMENTS FOR PROTECTION OF VEGETATION ARE LOW.
• MAINTENANCE OF NATIVE TREES OR VEGETATION SHOULD CONFORM TO LANDSCAPE PLAN SPECIFICATIONS.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER WASTE

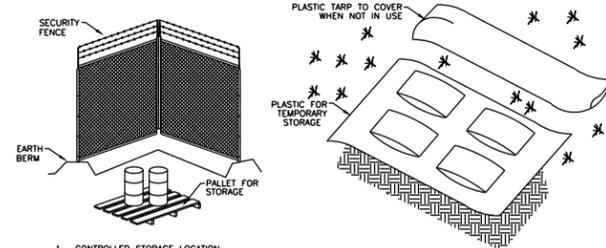
- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: MATERIALS STORAGE



- CONTROLLED STORAGE LOCATION
- BERM AROUND PERIMETER IMPOUNDMENT
- STORAGE OFF GROUND
- COVER WHEN NOT IN USE

DESCRIPTION:
CONTROLLED STORAGE OF ON-SITE MATERIALS.

APPLICATION:
• STORAGE OF HAZARDOUS, TOXIC, AND ALL OTHER CHEMICAL SUBSTANCES.
• ANY CONSTRUCTION SITE WITH OUTSIDE STORAGE OF MATERIALS.

- INSTALLATION/APPLICATION CRITERIA:**
- DESIGNATE A SECURED AREA WITH LIMITED ACCESS AS THE STORAGE LOCATION. ENSURE NO WATERWAYS OR DRAINAGE PATHS ARE NEARBY.
 - CONSTRUCT COMPACTED EARTHEN BERM (SEE EARTH BERM BARRIER INFORMATION SHEET OR SIMILAR PERIMETER CONTAINMENT AROUND STORAGE LOCATION FOR IMPOUNDMENT IN THE CASE OF SPILLS.
 - ENSURE ALL ON-SITE PERSONNEL UTILIZE DESIGNATED STORAGE AREA. DO NOT STORE EXCESSIVE AMOUNTS OF MATERIAL THAT WILL NOT BE UTILIZED ON SITE.
 - FOR ACTIVE USE OF MATERIALS AWAY FROM THE STORAGE AREA ENSURE MATERIALS ARE NOT SET DIRECTLY ON THE GROUND AND ARE COVERED WHEN NOT IN USE. PROTECT STORM DRAINAGE DURING USE.

LIMITATIONS:
• DOES NOT PREVENT CONTAMINATION DUE TO MISHANDLING OF PRODUCTS.
• SPILL PREVENTION AND RESPONSE PLAN STILL REQUIRED.
• ONLY EFFECTIVE IF MATERIALS ARE ACTIVELY STORED IN CONTROLLED LOCATION.

MAINTENANCE:
• INSPECT DAILY AND REPAIR ANY DAMAGE TO PERIMETER IMPOUNDMENT OR SECURITY FENCING.
• VERIFY THAT ALL MATERIALS ARE BEING CORRECTLY STORED (I.E. STANDING UPRIGHT, IN LABELED CONTAINERS, TIGHTLY CAPPED) AND THAT NO MATERIALS ARE BEING STORED AWAY FROM THE DESIGNATED LOCATION.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER WASTE

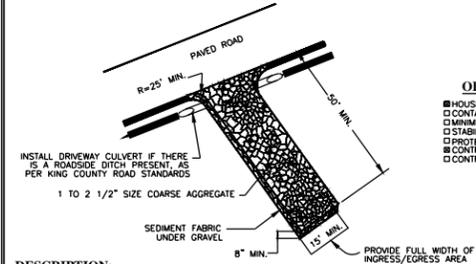
- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: STABILIZED CONSTRUCTION ENTRANCE AND WASH AREA



DESCRIPTION:
A STABILIZED PAD OF CRUSHED STONE LOCATED WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE FROM OR TO THE PAVED SURFACE. THE AREA CAN BE USED TO SPRAY OFF VEHICLES BEFORE THEY LEAVE THE SITE.

APPLICATION:
AT ANY POINT OF INGRESS OR EGRESS AT A CONSTRUCTION SITE WHERE ADJACENT TRAVELED WAY IS PAVED. GENERALLY APPLIES TO SITES OVER 2 ACRES UNLESS SPECIAL CONDITIONS EXIST.

- INSTALLATION/APPLICATION CRITERIA:**
- CLEAR AND GRUB AREA AND GRADE TO PROVIDE MAXIMUM SLOPE OF 2%.
 - COMPACT SUB GRADE AND PLACE FILTER FABRIC IF DESIRED (RECOMMENDED FOR ENTRANCES TO REMAIN FOR MORE THAN 3 MONTHS).
 - PLACE COARSE AGGREGATE, 1 TO 2 1/2 INCHES IN SIZE, TO A MINIMUM DEPTH OF 8 INCHES.
 - PROVIDE BERM AROUND THE AREA THAT CAN BE USED TO SPRAY OFF VEHICLES AS NEEDED TO PREVENT THE TRACKING OF MUD OFF OF THE CONSTRUCTION SITE. THIS MAY NOT BE NEEDED DURING DRY PERIODS OF WORK, BUT IS NEEDED IN CONSTRUCTION IS PROCEEDING UNDER WET CONDITIONS.
 - PROVIDE BERMS AS NEEDED TO PREVENT SEDIMENT LADEN WASH WATER FROM ENTERING STORM WATER FACILITIES OR OTHER WATER BODIES, OR LEAVING THE SITE.

LIMITATIONS:
• REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL STONES.
• SHOULD BE USED IN CONJUNCTION WITH STREET SWEEPING ON ADJACENT PUBLIC RIGHT-OF-WAY.
• MUST BE SITUATED SUCH THAT WASTE WATER DOES NOT RUN OFF SITE.

MAINTENANCE:
• INSPECT DAILY FOR LOSS OF GRAVEL OR SEDIMENT BUILDUP.
• INSPECT ADJACENT ROADWAY FOR SEDIMENT DEPOSIT AND CLEAN BY SHOVELING AND SWEEPING.
• REPAIR ENTRANCE AND REPLACE GRAVEL AS REQUIRED TO MAINTAIN CONTROL IN GOOD WORKING CONDITION.
• EXPAND STABILIZED AREA AS REQUIRED TO ACCOMMODATE TRAFFIC AND PREVENT EROSION AT DRIVEWAYS.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER CONSTRUCTION WASTE

- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: DUST CONTROLS



DESCRIPTION:
DUST CONTROL MEASURES ARE USED TO STABILIZE SOIL FROM WIND EROSION, AND REDUCE DUST BY CONSTRUCTION ACTIVITIES.

APPLICATION:
DUST CONTROL IS USEFUL IN ANY PROCESS AREA, LOADING AND UNLOADING AREA, MATERIAL HANDLING AREAS, AND TRANSFER AREAS WHERE DUST IS GENERATED. STREET SWEEPING IS LIMITED TO AREAS THAT ARE PAVED.

- INSTALLATION/APPLICATION CRITERIA:**
- TWO KINDS OF STREET SWEEPERS ARE COMMON: BRUSH AND VACUUM. VACUUM SWEEPERS ARE MORE EFFICIENT AND WORK BEST WHEN THE AREA IS DRY.
 - MECHANICAL EQUIPMENT SHOULD BE OPERATED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS AND SHOULD BE INSPECTED REGULARLY.
 - WATER MAY BE SPRAYED ON THE GROUND SURFACE TO MOISTEN DRY SOILS, MAKING IT LESS SUSCEPTIBLE TO WIND EROSION.

LIMITATIONS:
• STREET SWEEPING IS LABOR AND EQUIPMENT INTENSIVE AND MAY NOT BE EFFECTIVE FOR ALL POLLUTANTS.
• WATER SPRAYED FROM WATER TRUCKS MUST BE DONE AT A RATE SUCH THAT THE WATER IS ABSORBED IN THE SOIL. IF EXCESSIVE AMOUNTS OF WATER ARE USED, IT MAY RUN OFF, CARRYING SOIL WITH IT.

MAINTENANCE:
IF EXCESS WATER RESULTS FROM WATER SPRAYING, DUST-CONTAMINATED WATERS SHOULD NOT BE ALLOWED TO RUN OFF SITE. AREAS MAY NEED TO BE REGRADED TO KEEP DUST FROM SPREADING.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER WASTE

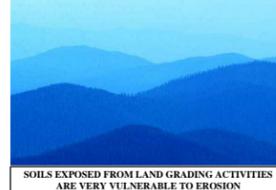
- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: GRADING PRACTICES



DESCRIPTION:
CONTROL SOIL EROSION BY MINIMIZING THE EXPOSURE OF BARE SOIL TO EROSION FORCES. THIS IS DONE BY:
(1) LIMITING THE AMOUNT OF LAND DISTURBED AT ONE TIME IN PREPARATION FOR CONSTRUCTION.
(2) LIMITING THE AMOUNT OF TIME BETWEEN THE DISTURBANCE OF SOIL AND PROTECTION OR STABILIZATION OF DISTURBED SOILS.
(3) USING GRADING PRACTICES TO PROTECT EXPOSED SOILS SUSCEPTIBLE TO STORM WATER RUNOFF. RELATED PRACTICES INCLUDE CONSTRUCTION SEQUENCING, PRESERVATION OF EXISTING VEGETATION, EROSION CONTROL PRACTICES AND SEDIMENT CONTROL PRACTICES.

- APPROACH:**
- LIMIT THE AREA OF DISTURBANCE TO THOSE AREAS REQUIRING GRADING. THIS PRESERVES EXISTING VEGETATION AND REDUCES THE VULNERABILITY OF SOIL TO EROSION.
 - BASED ON EROSION POTENTIAL AND SEDIMENT CONTROL MEASURES ON THE SITE, ESTABLISH WHAT AREAS ARE TO GRADED AT ONE TIME.
 - AN UNDISTURBED BUFFER ZONE CONTAINING VEGETATION AT THE LOWEST ELEVATION OF A CONSTRUCTION SITE CAN REDUCE THE TRANSPORT OF SEDIMENT OFF SITE.
 - INITIATE SOIL PROTECTION MEASURES DURING THE COURSE OF WORK TO MINIMIZE THE LENGTH OF TIME SOILS ARE EXPOSED TO EROSION FORCES.
 - CONDUCT WORK IN STAGES SO THAT CONSTRUCTION OR SOIL STABILIZATION OCCURS PROMPTLY AFTER DISTURBANCE OF SOIL.
 - ESTABLISH A SCHEDULE GOVERNING THE STABILIZATION OF DISTURBED SLOPES, BOTH IN TERMS OF PASSAGE OF TIME SINCE COMMENCEMENT AND COMPLETION OF DISTURBANCE AND IN TERMS OF PLANTING SEASON.
 - LEAVING THE SURFACE OF THE DISTURBED SOIL GRADED IN A ROUGHENED CONDITION (NOT SMOOTH) CAN REDUCE THE QUANTITY AND VELOCITY OF STORM WATER RUNOFF.
 - PREVENT STORM WATER RUNOFF FROM RUNNING ONTO STEEP SLOPES FROM ABOVE.
 - AVOID LONG, STEEP CUT OR FILL SLOPES THAT ALLOW RUNOFF WATER OF SUFFICIENT QUANTITY OR VELOCITY TO CUT INTO AND ERODE THE SLOPE.

LIMITATIONS:
• THE SPECIFIC APPROACH TO GRADING ON A PARTICULAR SITE DEPENDS ON THE CONDITIONS OF THE SITE AND SURROUNDING LAND. ENGINEERING JUDGMENT IS REQUIRED TO DESIGN THE APPROACH BEST SUITED FOR EACH SITE.

MAINTENANCE:
• PRACTICES MAY NEED TO VARY FROM THE APPROVED PLAN IF EROSION PROBLEMS APPEAR WHEN STORM WATER RUNOFF OCCURS.

OBJECTIVES

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER CONSTRUCTION WASTE

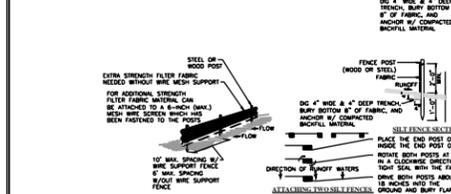
- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: SILT FENCE



DESCRIPTION:
A TEMPORARY SEDIMENT BARRIER CONSISTING OF ENTRENCHED FILTER FABRIC STRETCHED ACROSS AND SECURED TO SUPPORTING POSTS.

APPLICATION:
• PERIMETER CONTROL: PLACE BARRIER AT DOWNGRADE LIMITS OF DISTURBANCE
• SEDIMENT BARRIER: PLACE BARRIER AT TOE OF SLOPE OR SOIL STOCKPILE
• PROTECTION OF EXISTING WATERWAYS: PLACE BARRIER NEAR TOP OF STREAM BANK
• INLET PROTECTION: PLACE FENCE SURROUNDING CATCHBASINS

- INSTALLATION / APPLICATION CRITERIA:**
- PLACE POSTS 6 FEET APART ON CENTER ALONG CONTOUR (OR USE PREASSEMBLED UNIT) AND DRIVE 1 FOOT MINIMUM INTO GROUND. EXCAVATE AN ANCHOR TRENCH IMMEDIATELY UPGRADATION OF POSTS.
 - SECURE WIRE MESH (14 GAGE MIN. WITH 6 INCH OPENINGS) TO UPSLOPE SIDE OF POSTS ATTACH WITH HEAVY DUTY 1 INCH LONG WIRE STAPLES, TIE WIRES OR HOG RINGS.
 - CUT FABRIC TO REQUIRED WIDTH, UNROLL ALONG LENGTH OF BARRIER AND DRAPE OVER BARRIER. SECURE FABRIC TO MESH WITH TWINE, STAPLES, OR SIMILAR, WITH TRAILING EDGE EXTENDING INTO ANCHOR TRENCH.
 - BACKFILL TRENCH OVER FILTER FABRIC TO ANCHOR.

LIMITATIONS:
• RECOMMEND MAXIMUM DRAINAGE AREA OF 0.5 ACRE PER 100 FEET OF FENCE
• RECOMMEND MAXIMUM UPGRADATION SLOPE LENGTH OF 150 FEET
• RECOMMEND MAXIMUM UPHILL GRADE OF 2:1 (50%)
• RECOMMEND MAXIMUM FLOW RATE OF 0.5 CFS
• PONDING SHOULD NOT BE ALLOWED BEHIND FENCE

MAINTENANCE:
• INSPECT IMMEDIATELY AFTER ANY RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
• LOOK FOR RUNOFF BYPASSING ENDS OF BARRIERS OR UNDERCUTTING BARRIERS.
• REPAIR OR REPLACE DAMAGED AREAS OF THE BARRIER AND REMOVE ACCUMULATED SEDIMENT.
• REANCHOR FENCE AS NECESSARY TO PREVENT SHORTCUTTING.
• REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/2 THE HEIGHT OF THE FENCE.

APPLICATIONS

- HOUSEKEEPING PRACTICES
- CONTAIN WASTE
- MINIMIZE DISTURBED AREAS
- STABILIZE DISTURBED AREAS
- PROTECT SLOPES/CHANNELS
- CONTROL SITE PERIMETER
- CONTROL INTERNAL EROSION

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- TOXIC MATERIALS
- OIL & GREASE
- FLOATABLE MATERIALS
- OTHER WASTE

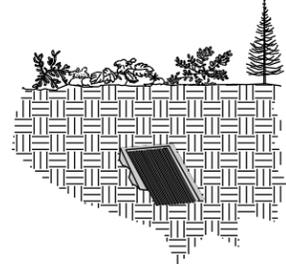
- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIREMENTS

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING

- HIGH MEDIUM CLOW

BMP: INSPECTION AND MAINTENANCE



DESCRIPTION:
INSPECT AND MAINTAIN ALL STRUCTURAL BMP'S (BOTH EXISTING AND NEW) ON A ROUTINE BASIS TO REMOVE POLLUTANTS FROM ENTERING STORM DRAIN INLETS. THIS INCLUDES THE ESTABLISHMENT OF A SCHEDULE FOR INSPECTIONS AND MAINTENANCE.

APPROACH:
REGULAR MAINTENANCE OF ALL STRUCTURAL BMP'S IS NECESSARY TO ENSURE THEIR PROPER FUNCTIONALITY.
• ANNUAL INSPECTIONS
• PRIORITIZE MAINTENANCE TO CLEAN, MAINTAIN, AND REPAIR OR REPLACE STRUCTURES IN AREAS BEGINNING WITH THE HIGHEST POLLUTANT LOADING.
• CLEAN STRUCTURAL BMP'S IN HIGH POLLUTANT AREAS JUST BEFORE THE WET SEASON TO REMOVE SEDIMENTS AND DEBRIS ACCUMULATED DURING THE SUMMER AND FALL.
• KEEP ACCURATE LOGS OF WHAT STRUCTURES WERE MAINTAINED AND WHEN THEY WERE MAINTAINED.
• RECORD THE AMOUNT OF WASTE COLLECTED.

LIMITATIONS:
• AVAILABILITY OF TRAINED STAFF.

APPLICATIONS

- MANUFACTURING
- MATERIAL HANDLING
- VEHICLE MAINTENANCE
- CONSTRUCTION
- COMMERCIAL ACTIVITIES
- ROADWAYS
- WASTE CONTAINMENT
- HOUSEKEEPING PRACTICES

TARGETED POLLUTANTS

- SEDIMENT
- NUTRIENTS
- HEAVY METALS
- TOXIC MATERIALS
- OXYGEN DEMANDING SUBSTANCES
- OIL AND GREASE
- FLOATABLE MATERIALS
- BACTERIA AND VIRUSES

- HIGH IMPACT
- MEDIUM IMPACT
- LOW OR UNKNOWN IMPACT

IMPLEMENTATION REQUIRED

- CAPITAL COSTS
- O&M COSTS
- MAINTENANCE
- TRAINING
- ADMINISTRATIVE

- HIGH MEDIUM CLOW