

**GENERAL:**

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2012, AND ITS LATEST REVISIONS.
- PRIOR TO ANY EARTH DISTURBANCE, INCLUDING BUT NOT LIMITED TO REMOVAL OF EXISTING CONCRETE PAVERS, THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER PHOTOGRAPHS AND DOCUMENTATION OF EXISTING CONDITIONS.
- THERE ARE EXISTING BELOW GRADE AND ABOVE GRADE, PRIVATELY OWNED, UTILITIES WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN WORKING IN THE VICINITY OF THESE UTILITIES.

**CAST-IN-PLACE CONCRETE HEADWALL, WINGWALL AND FOOTING:**

**GENERAL**

- ALL CONCRETE SHALL BE CAST-IN-PLACE.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
- ALL HARDWARE SHALL BE STEEL.
- ALL STEEL WITH THE EXCEPTION OF REINFORCING SHALL BE HOT DIPPED GALVANIZED.

**CONCRETE AND REINFORCING STEEL**

- WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES ON THE HEADWALL AND WINGWALLS. WATER REPELLENT, SILANE IS NOT NEEDED FOR OTHER CONCRETE ELEMENTS UNLESS DIRECTED BY THE ENGINEER.
- ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
- REINFORCING STEEL IN THE HEADWALL, WINGWALLS AND FOOTING SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR UNCOATED LEVEL 1 REINFORCING STEEL.
- ALL EXPOSED EDGES ON CONCRETE SHALL BE CHAMFERED 1" X 1".
- MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
  - ALONG BACK FACES OF WALLS AGAINST EARTH - 2 INCHES
  - ELSEWHERE UNLESS OTHERWISE INDICATED - 3 INCHES
- DESIGN VALUES
  - HIGH PERFORMANCE CLASS B CONCRETE COMPRESSIVE STRENGTH:  $f_c = 3500$  PSI.

**SPECIAL PROVISION (STOP LOG SYSTEM):**

- ONCE THE PROJECT HAS BEEN COMPLETED, SPECIAL PROVISION (STOP LOG SYSTEM) WILL BE UTILIZED BY BROMLEY TO DIVERT WATER FLOW INTO AN EXISTING 42" DIVERSION PIPE. WATER WILL BE DIVERTED BY INSERTING 2" X 10" SELECT STRUCTURAL SOUTHERN PINE BOARDS INTO THE GALVANIZED STEEL CHANNEL THAT SHALL BE CONSTRUCTED AT THE FACE OF THE WINGWALL.
- ALL MOUNTING HARDWARE NECESSARY TO INSTALL THE SPECIAL PROVISION (STOP LOG SYSTEM) SHALL BE CONSIDERED INCIDENTAL TO ITEM NUMBER 900.645 SPECIAL PROVISION (STOP LOG SYSTEM).
- TIMBER FOR SPECIAL PROVISION (STOP LOG SYSTEM)
  - TIMBER SHALL BE IN ACCORDANCE WITH AASHTO LRFD AND ANSI/AF&PA NDS, NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION WITH COMMENTARY AND NDS SUPPLEMENT-DESIGN VALUES FOR WOOD STRUCTURES LATEST EDITION AND THE USDA FOREST SERVICE TIMBER MANUAL.
  - THE MAXIMUM ALLOWABLE MOISTURE CONTENT IS 19 PERCENT FOR ALL SAWN MEMBERS AT INSTALLATION.
  - ALL LUMBER SHALL BE TREATED IN ACCORDANCE WITH AASHTO M133 AND AWPA STANDARD C14 WITH MATERIALS APPROVED BY THE ENGINEER.
  - THE MINIMUM DESIGN VALUE OF SOUTHERN PINE SHALL BE:
    - $E_{90} = 2.05$  KSI
    - $E_o = 1.600$  KSI

**TRAFFIC CONTROL:**

SEE TRAFFIC CONTROL SHEETS FOR APPLICABLE TRAFFIC AND STAGING NOTES.

**EPSC:**

SEE EPSC SHEETS FOR APPLICABLE EPSC NOTES.

**UTILITIES:**

- THE WEEK OF 10/07/2013 TO 10/11/2013 BSI ENGINEERING PERFORMED TRACING AND EXPLORATORY TEST PITS TO DETERMINE THE LOCATION AND DEPTHS OF EXISTING UTILITIES ALONG THE PROPOSED CULVERT ALIGNMENT. THE RESULTS HAVE BEEN PLOTTED ONTO THE BASEMAP.
- UNLESS OTHERWISE NOTED ON THE PLANS, ALL UTILITIES HAVE BEEN PLOTTED TO QUALITY LEVEL "C"; SEE BELOW.
- UTILITY QUALITY LEVEL INFORMATION INDEX (SEE ASCE/C1 38-02):

**UTILITY QUALITY LEVEL (QL-A):**

PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 0.05 FEET (15-MM) VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER. INFORMATION IS ONLY VALID WITHIN THE VISIBLE LIMITS OF THE TEST HOLE.

**UTILITY QUALITY LEVEL (QL-B):**

INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.

**UTILITY QUALITY LEVEL (QL-C):**

INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

**UTILITY QUALITY LEVEL (QL-D):**

INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

- EXISTING BROMLEY OWNED WATER AND SEWER LINES EXIST AND WILL BE REQUIRED TO BE SUPPORTED AND/OR BYPASSED DURING CONSTRUCTION OF THIS PROJECT AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTIONS 628 AND 629 OF THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
- SEE THE UTILITIES SECTION OF THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS

**PARKING LOT RESTORATION:**

- ANY AREA OF THE PARKING LOT DAMAGED BY THE CONTRACTOR SHALL BE RESTORED TO THE SATISFACTION OF THE ENGINEER BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.
- PARKING LOT PATCHING SHALL BE AS SPECIFIED IN THE TRENCH DETAIL.
- ALL PARKING LOT STRIPING SHALL BE REPLACED AS SPECIFIED ON THE TRAFFIC SIGNS AND MARKING SHEET.

**PIPE INSTALLATION:**

- THE CONTRACTOR SHALL NOTIFY BROMLEY MOUNTAIN SKI RESORT (BROMLEY) AT LEAST 30-DAYS PRIOR TO COMMENCING WITH ANY WORK WITHIN THE NON-PARTICIPATING AREA SO THAT BROMLEY CAN REMOVE ALL MINIATURE GOLF FEATURES. BROMLEY WILL RESTORE THE MINIATURE GOLF FEATURES AT THE COMPLETION OF CONSTRUCTION.
- STANDARD PIPE LENGTHS OF THE 72" PIPE SHALL BE A MINIMUM OF 20-FEET. ALL JOINTS SHALL BE RUBBER GASKETED, AND NO JOINT SHALL BE LOCATED WITHIN 10-FEET OF THE SKI RESORT BUILDING CORNER AT STA. 13+91

- THE CONTRACTOR SHALL TAKE NOTE THAT TEMPORARY SUPPORT OF EXCAVATION IS ANTICIPATED TO BE REQUIRED TO COMPLETE THE WORK UNDER THIS CONTRACT. SPECIAL PRECAUTIONS SHALL BE TAKEN WHEN EXCAVATING IN THE VICINITY OF THE SKI LIFT TOWER #1 (TOWER #1) FOUNDATION AND THE BROMLEY BUILDING. THE USE OF TRENCH BOXES FOR TEMPORARY SUPPORT OF EXCAVATION WITHIN 30-FEET OF THE BROMLEY BUILDING CORNER AND TOWER #1 FOUNDATION IS PROHIBITED.
- THE CONTRACTOR SHALL SUBMIT CONSTRUCTION DRAWINGS FOR THE ENGINEER'S APPROVAL AT LEAST 30 DAYS PRIOR TO THE ANTICIPATED START OF ANY WORK WITHIN 30-FEET OF THE BUILDING CORNER AND TOWER #1 FOUNDATION. IN ADDITION TO THE REQUIREMENTS SET FORTH UNDER SECTIONS 105 AND 204, THE CONSTRUCTION DRAWINGS SHALL DETAIL THE PROPOSED METHOD FOR EXCAVATION SUPPORT WITHIN 30-FEET OF THE BUILDING CORNER AND TOWER #1 FOUNDATION, PROCEDURE FOR PERFORMING A PRE- AND POST-CONSTRUCTION SURVEY AND PROCEDURES FOR SETTLEMENT AND VIBRATION MONITORING AS DISCUSSED FURTHER BELOW. THE SUPPORT OF EXCAVATION WITHIN THE AREA OF THE BUILDING CORNER AND TOWER #1 FOUNDATION SHALL MEET THE FOLLOWING CRITERIA:
  - THE SUPPORT OF EXCAVATION WITHIN 15- FEET OF THE TOWER #1 FOUNDATION AND THE BUILDING SHALL BE LEFT IN PLACE WHERE SHOWN ON THE PLANS. THE TOP OF THE SUPPORT OF EXCAVATION ELEVATION SHALL BE NO LOWER THAN 12-INCHES ABOVE THE TOP OF THE TOWER #1 FOOTING (SEE SHEET 29) OR THE TOP OF THE BUILDING FOOTING (THE BUILDING HAS A WALKOUT BASEMENT AND THE TOP OF FOOTING ELEVATION IS NOT KNOWN, BUT CAN BE APPROXIMATED TO BE AT ELEVATION 1993)
  - NO WOOD PRODUCTS SHALL BE ALLOWED FOR THE EXCAVATION SUPPORT TO BE LEFT IN PLACE.
  - SUPPORT OF EXCAVATION SYSTEMS MAY INCLUDE BUT ARE NOT LIMITED TO STEEL SHEETING, SOLDIER PILE AND LAGGING (WOOD LAGGING IS PROHIBITED), AND BUILDING UNDER PINNING.
  - THE BUILDING LOAD AT THE BUILDING FOOTING IS 3.6 KIPS/LF. TEMPORARY SUPPORT OF EXCAVATION DESIGN SHALL ACCOUNT FOR THIS ADDITIONAL LOAD.
  - SETTLEMENT AND VIBRATION MONITORING SHALL BE PROVIDED AS DISCUSSED BELOW. THE COST OF ALL EXCAVATION SUPPORT SHALL BE CONSIDERED INCIDENTAL TO ITEM 204.25 STRUCTURE EXCAVATION.
- IN THE VICINITY OF THE BUILDING AND TOWER #1 FOUNDATION AS SHOWN ON THE PLANS OR AS OTHERWISE DIRECTED BY THE ENGINEER, THE PIPE TRENCH SHALL BE BACKFILLED USING CONTROLLED DENSITY (FLOWABLE) FILL MEETING THE MATERIAL REQUIREMENTS OF CONTROLLED DENSITY (FLOWABLE) FILL PROVIDED BELOW. BACKFILL THE 72" PIPE TRENCH WITH CONTROLLED DENSITY (FLOWABLE) FILL IN ACCORDANCE WITH THE DETAIL ON SHEET 7 TO THE LIMITS OF THE EXCAVATION SUPPORT TO BE LEFT IN PLACE. BACKFILL THE 12" PIPE TRENCH IN ACCORDANCE WITH THE PLANS. THE CONTRACTOR SHALL RESTRAIN THE PIPES TO RESIST BUOYANCY WHEN BACKFILLING THE TRENCH. THE COST FOR THE CONTROLLED DENSITY (FLOWABLE) FILL SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 541.45 CONTROLLED DENSITY (FLOWABLE) FILL.

CLASS	MINIMUM CEMENT (LBS/CY)	MAX WATER-CEMENT RATIO	RANGE IN SLUMP (IN)	AIR CONTENT (%)	COARSE AGGREGATE TABLE	28-DAY COMP. STRENGTH (PSI)
CONTROLLED DENSITY (FLOWABLE) FILL	100 & 300 LBS OF *FLY ASH, CLASS F	3	8 MIN.	10 MIN.	704.01 (FINE AGGREGATE)	125 MAX.

- A PRE-CONSTRUCTION SURVEY OF THE SKI RESORT BUILDING AND SKI LIFT TOWER #1 FOUNDATION SHALL BE CONDUCTED AND SHALL INCLUDE:
  - VIDEOS, PHOTOGRAPHS, AND A LEVEL SURVEY GIVING ELEVATIONS (ON THE PROJECT DATUM) OF SPECIFIC LOCATIONS WHICH SHALL BE NOTED ON PRINTS SUBMITTED TO THE ENGINEER. A SURVEY BENCHMARK SHALL BE ESTABLISHED ON TOWER #1 AND AT LEAST AT FIVE APPROVED LOCATIONS ALONG THE BUILDING FOUNDATION WALL: THE SOUTHWEST CORNER OF THE BUILDING FOUNDATION, AT 10- FEET AND 20- FEET NORTHERLY ALONG THE BUILDING FOUNDATION, THE BULKHEAD FOUNDATION, AND 20- FEET EASTERLY ALONG THE BUILDING FOUNDATION.
  - ALL SURVEYS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER AND PROPERTY OWNER OR THEIR DESIGNEE.
  - NOTATION AND MEASUREMENTS OF ANY EXISTING ARCHITECTURAL, STRUCTURAL, COSMETIC, PLUMBING OR ELECTRICAL DAMAGE OR ANY OTHER DAMAGE.
  - DOCUMENTATION OF ANY VIBRATION OR MOVEMENT SENSITIVE EQUIPMENT.
  - WHERE BUILDING STRUCTURAL ELEMENTS AND ALL RELATED ARCHITECTURAL AND BUILDING FACILITIES ARE INVOLVED, A STATE OF VERMONT LICENSED STRUCTURAL ENGINEER SHALL BE IN RESPONSIBLE CHARGE OF THE SURVEY.
  - ALL DOCUMENTATION FROM THE PRE-CONSTRUCTION SURVEY SHALL BE PROVIDED TO THE ENGINEER AT LEAST 30 DAYS PRIOR TO BEGINNING ANY EXCAVATION WORK WITHIN 30- FEET OF THESE STRUCTURES. THE COST OF THE PRE-CONSTRUCTION SURVEY SHALL BE CONSIDERED INCIDENTAL TO ITEM 204.25 STRUCTURE EXCAVATION.

REVISION	BY	DATE
NOTE 4a REVISED	MAB	2/10/2015

PROJECT NAME: PERU	PLOT DATE: 12/31/2014
PROJECT NUMBER: STP SCRP(4)	DRAWN BY: M. BRADLEY
FILE NAME: z07bl06det.dgn	CHECKED BY: B. KHALIFA
PROJECT LEADER: E. ATKINS	SHEET 5 OF 45
DESIGNED BY: B. KHALIFA	
PROJECT NOTES SHEET 1	

