Addendum #2

Capital Project Committee

Project Information	
Project Name:	Promontory Traffic Conduit
Bid Number:	RFP #FD20-03-060
Date:	April 9, 2020
Project Manager:	Brian Ward

Addendum Items	
Item 1	Liquidated damages are $500/day "Article 41 / 41.1" and $1000/day in "Special Provisions 8". Which is correct and will these be assessed considering current global situation (ie. vendor supply chain)? The liquidated damages for the project shall be $500 / day.
Item 2	Will the contractor be allowed to stage equipment & materials along the ROW? Yes.
Item 3	One of the boxes (16th St.) looks to be placed in the sidewalk. Should the contractor plan for this or should the pull boxes be placed to avoid hard surface restoration? The pull boxes shall be placed to avoid hard surfaces.
Item 4	Is mule tape to be placed in all conduits (21560ft)? Mule tape would need to be placed in each 2" conduit but a tracer wire would only need to be placed in one of the 2" conduits. Be sure that the tracer wire is a continuous piece from pull box to pull box.
Item 5	Would 5/8" x 8ft ground rods be acceptable? Yes
Item 6	Will the contractor be responsible for hard surface pothole restoration? Yes – the contractor is responsible for hard surface pothole restoration per City standard.
Item 7	What grass seed mix is to be used for this project? Pleasesee below and the attached document.
	Tree Lawn Mix
	For use in specified tree lawns

	SPECIES	POUNDS PER 1,000 sq/ft
	Buffalograss 'Sundancer'	4
	Blue grama 'Alma'	1

Item 8	What is the cost per day for Liquidated Damages - $500.00 per day or is it $1000.00 per day? See Item #1 answer
Item 9	Is there any CDOT permitting needed for this job? Yes. The contractor will need to submit for the permit.

Item 10	If so, is the contractor responsible for getting permits. Yes also the contractor will need to obtain a City ROW permit.
Item 11	Are there any specific colors of conduit you do or do not want used? We would like to see an orange one and a blue one designated for City of Greeley, that would be consistent with what we have used throughout the city.
Item 12	Does a 90 have to be used to sweep up into a handhole? No you do not have to use a sweep, we are ok with the boring contractor entering the pull box at an angle that would allow the fiber to be coiled without damaging it.
Item 13	Handhole lids, what do you want them to say and tier 15 or 22? Tier 22 and the lids should have an Orange puck that reads "Traffic Signal". See attached picture of this along with the pullbox type/specs
Item 14	In plans on the south HWY 34 intersection it shows boring the path but not setting any handholes? Is that correct? Yes – the handholes in the Promontory / SH34 intersection will be installed by others.
Item 15	Are there any color specs for the conduit? Each conduit must be a minimum of 2" in diameter and be identifiable from the other conduits for the entire run of the conduit. The contractor may choose how to accomplish this. Options are for different colored conduits (or conduits with individual identifiers such as differing colored stripes), slightly different sized conduits, or some combination thereof.
	The 144 Fiber install quantity is 5390 Linear Feet. The conduit install quantity is also 5390 LF.
Item 16	Does this quantity of 5390 LF include the coils to be placed inside of each pull box on the project? -or – Is the Contractor suppose to supply the additional footage per specs at no cost? -or – will there be a quantity adjustment/qty overrun for the actual amount of fiber installed in the field? The 5390 LF of fiber conduit is the actual footage of conduit to be installed. The coiled up portion of the fiber in each box shall be considered incidental to the work and shall not be paid for separately.
	The 144 fiber optic cable composition that is spec'd out on pages 13-19 in the "Scope of Work and Informational Notes" Section of the Bid calls out for "loose-tube, gel filled" as some of the spec characteristics. Right now in the industry - the potential manufacturing timeframe is 5-7 weeks or 7-9 weeks or 8-10 weeks for production. The project is scheduled for 60 calendar days.
Item 17	Will the City adjust the Construction calendar days prior to the start of the project or will the Contractor of Award have to file for an extension/finish everything on the project except the fiber placement/get Substantial Completion Status and have to re-mob back to install the fiber when it arrives? Due to the leadtime issue on the fiber the vendor would have to remob. The contractor may have an additional 15 days to install the fiber once it comes in, outside of the 60 day period. Substantial completion however will be when the conduit and boxes are installed within the 60 days and then wire installation within 15 days of the delivery of the wire.
Item 18	How does this affect the 2 year warranty from time of final Completion? The warranty begins once the fiber cabling is fully installed and accepted by the City.

Item 19	How will this affect the Progressive Payments and Final Retainage? Since wiring is a line item, payments can be made for the conduit / box work and the na payment can be made for the wiring once it is completed.

LANDSCAPING SPECIFICATIONS

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DIVISION 2-SITE WORK

SECTION 02920 - SOIL PREP AND SEEDING

PART 1 - GENERAL

1.01 SUMMARY:

I. Section Includes:

A. Fine grading and preparing areas to be seeded.

B. Furnishing and applying soil amendments.

C. Furnishing and applying fertilizer, herbicides.

D. Furnishing and seeding new areas.

1.02 SUBMITTALS:

I. Quality Control Submittals:

A. Certificates: State, Federal and other inspection certificates shall be submitted to the City prior to acceptance of material.

B. Seed: Certification of grass seed from seed vendor including the composition of each grass-seed mixture, stating the botanical and common name, percentage by weight of each species and variety, percentage of purity, germination, and weed seed. Include the year of production and date of packaging. Seed packaging and identification tags are to be submitted to the owner at completion of seeding.

C. Imported Soil Amendment Test Report: Submit test analysis to City for acceptance prior to delivery of material.

D. Fertilizer: State, Federal and other certificates shall accompany invoices for materials showing sources of origin. Submit to City prior to acceptance of material.

1.03 DELIVERY, STORAGE AND HANDLING:

I. General: Handle and transport in a safe manner in compliance with local state, and federal regulations. Comply with MSDS requirements.

II. Fertilizer: Deliver inorganic or chemical fertilizer to site in original unopened containers bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark, and conformance to state law, bearing name and warranty of producer.

III. Soil Amendments: Do not stockpile. Distribute and till immediately upon arrival at site (same day).

IV. Seed: Deliver seed in original sealed, labeled, and undamaged containers. All material shall be furnished in original manufactures shipping bags or containers, and remain in these bags or containers until used. All materials shall be stored in a manner which will prevent them from coming into contact with precipitation, surface water, or other contaminating substances. All materials which have become wet, moldy or otherwise damaged in transit, or stored improperly shall not be used.

1.04 PROJECT/SITE CONDITIONS:

I. General: Do not perform work when climate and existing site conditions will not provide satisfactory results.

II. Site Information: The Contractor shall be held to have examined the site, to ascertain the state thereof and the conditions under which the work is to be done. Note: Drawings typically indicate the physical dimensions of the site, but do not show the extent of all obstructions and subsurface conditions.

III. Existing Utilities: Protect from damage any sewer, water, gas, electric, phone, cable TV, irrigation or other pipe lines or conduits uncovered during the work until the matter has been reviewed by the City. If such lines are found to be abandoned and not in use, remove without extra cost. If such lines are found to be in use, carefully protect and carry on work around them. If City deems it advisable to move such lines, City will pay cost of moving.

IV. Existing Site Features: Protect from damage as noted herein or on drawings.

V. Vehicular Access:

A. Vehicular accessibility on site shall be kept to a minimum. Repair damage to prepared ground and surfaces caused by vehicular movement during work under this Section to original condition at no additional cost to City. Repair, to original condition, vehicular damage to the surrounding area at no additional cost to the City.

B. Only those vehicles identified with Company Name/Logo are allowed in the parks.

VI. Environmental Requirements:

A. Install seed between spring and fall; March 15 - September 30.

B. Do not install seed on saturated or frozen soil.

C. Do not install seed until soil preparations have been approved by the City.

D. Do not install seed until irrigation system is installed and tested.

E. Proceed with planting only when existing and forecast weather conditions are suitable for work.

PART 2 - MATERIALS

2.01 TOP SOIL AND SOIL AMENDMENTS: (Note that all percentages are by weight and not by volume.)

I. Topsoil: ASTM D 5268, PH range of 6.3 to 8.2, three percent (3%) organic material minimum, free of extraneous materials harmful to plant growth.

A. Topsoil Source:

1. The source of topsoil for this project is undesignated. Topsoil shall be fertile, friable, sandy loam or loam. Topsoil shall be of any admixture of subsoil or slag and shall be free of stones, lumps, refuse, plants or their roots , sticks, noxious weeds, salts, soil sterilant or other material detrimental to plant growth. Imported topsoil shall be obtained from a well-drained site that is free of flooding. Topsoil shall not be delivered or used onsite in any manner while in a frozen or muddy condition.
2. All imported topsoil shall be from an approved point of origin satisfactory to the Project Manager prior to delivery or placement in planting areas. Should noxious weeds be present at the topsoil source, the Project Manager will make recommendations to the Contractor as to appropriate treatment of the topsoil prior to delivery to the project site. The Contractor shall supply a sample of topsoil to the Colorado State University Soil Testing Laboratory for analysis a minimum of thirty (30) days prior to delivery of topsoil to the project site. The Contractor shall also contact the Project Manager to inspect and approve all planting areas prior to delivery or placement of topsoil. The Contractor shall submit to the Project Manager a Certificate of Compliance from the CSU Testing Laboratory verifying organic matter content, pH, sodium absorption ratio, electrical conductivity (paste test) and nutrient levels.

B. Provide analysis for the following:

1. Mechanical Analysis:
   a. 1" Screen Passing = 100% Retained = 0%
   b. ½" Screen Passing = 97 - 100% Retained = 3 - 0%
   c. No. 100 Mesh Sieve Passing = 40 - 60% Retained = 60 - 40%
2. Laboratory Analysis:
   a. Organic Matter Content: 3 - 8% (dry basis)
   b. Soluble Salts Concentration (EC paste test): 1.8 dS (mmhols/cm) or less (as received)
   c. PH range: 6.3 to 8.0 (as received)
   d. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
   e. Sodium Absorption Ratio (SAR): 8.0
3. Certification of Topsoil Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil furnished is from the lot that has been tested.

II. Soil Amendments:

A. Compost: One hundred percent (100%) humus rich organic matter. The compost shall be a well decomposed, stable, weed free organic matter derived from agricultural, food, or industrial residuals; biosolids (treated sewage sludge); yard trimmings, or source-separated or mixed solid waste. Product must be certified as fully composted at a permitted solid waste processing facility. Product to be registered with the Colorado Department of Agriculture and approved for use on Colorado Certified Organic Farms by the Division of Plant Industry of the State of Colorado. Product shall contain no solid particle greater than one-half inch (½") in length or diameter and be free from un-composted or non-stabilized wood bulking agents. Product shall contain no substances toxic to plants and shall be reasonably free (<1% by dry weight) of man-made foreign matter. The compost will possess no objectionable odors and shall not resemble the raw material from which it was derived.

B. Provide analysis for the following:

1. Organic Matter Content: 30 - 70% (dry basis)
2. Soluble Salt Concentration (EC paste test): 5 dS (mmhols/cm) or less (as received)
3. PH range: 5.5 to 8.0 (as received)
4. Final carbon to nitrogen ratio: 20:1 or less.
5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
6. Bulk Density: 800 - 1,000 Ibs/yd^3
7. Moisture Content: 35% - 55%

C. Certification of Compost Testing: The Contractor shall furnish to the City a signed statement certifying that the compost furnished is from the lot that has been tested.

III. Amended Topsoil: Offsite, mechanically combined product.

A. Amended Topsoil: Components of the amended topsoil product (compost and topsoil) shall meet all previously outlined criteria for the individual components.

1. The Contractor shall supply a sample of amended topsoil to the Colorado State University Soil Testing Laboratory for analysis a minimum of thirty (30) days prior to delivery of amended topsoil to the project site.
2. The Contractor shall contact the Project Manager to inspect and approve all planting areas prior to delivery or placement of amended topsoil. The Contractor shall submit to the Project Manager a Certificate of Compliance from the CSU Testing Laboratory verifying testing levels.

B. Provide analysis for the following:

1. Organic Matter Content: 3 - 15% (dry basis)
2. Soluble Salt Concentration (EC Paste Test): 2.7dS (mmhols/cm) or less (as received)
3. PH Range: 5.5 to 8.0 (as received)
4. Final carbon to nitrogen ratio: 20:1 or less.

5. Nutrient Content (dry weight basis): N 1% or above, P 1% or above, K 0.5% or above.
6. Moisture content: 35 to 55%

C. Certification of Topsoil Testing: The Contractor shall furnish to the City a signed statement certifying that the topsoil furnished is from the lot that has been tested.

IV. Fertilizer:

A. Before seeding, apply an inorganic mixture tilled thoroughly into the top six inches (6") of soil, unless otherwise stated:
1. 1 lb. of Nitrogen (N) per one thousand (1,000) square feet.
2. 2 lbs. Phosphorus (P205) per one-thousand (1,000) square feet.
3. 1 lb. Sulfur (SO4-S) per one-thousand (1,000) square feet.

2.02 SEED:

I. Grass Seed: Fresh, clean, dry, new-crop seed conforming to all State and Federal regulations and complying with the Association of Official Seed Analysts', "Rules for Testing Seeds" for purity and germination tolerances.

A. Seed Mixture: Provide seed of grass species and varieties, proportions by weight, and minimum percentages of purity, germination. All materials furnished shall be free of prohibited noxious weeds and meet State and City standards for restricted noxious weeds.

B. Proportions and Mixing: All seed shall be mixed by a wholesale seed supplier in the proportions-necessary to obtain the application rate specified.

C. Labels: All seed and seed mixes shall be furnished in bags or containers clearly labeled to show the name and address of the supplier, the common, scientific and variety name(s) of the seed(s), the lot number, net weight, percent of weed seed content and the guaranteed percent of purity and germination.

D. Certification of Seed Testing: The Contractor shall furnish to the City a signed statement certifying that the seed furnished is from the lot that has been tested and comply with the Colorado Seed Law.

2.03 HERBICIDES:

I. Herbicide: EPA registered and approved, of type utilized by City of Greeley Parks Department.

II. Applicators must possess both a Colorado Department of Agriculture license and City of Greeley pesticide applicator’s license.

III. The contractor making chemical applications must have a Qualified Supervisor on staff.

2.04 EROSION CONTROL NETTING, BLANKETS, MATS, FABRICS:

I. Erosion control blankets, mats, of other commercial products for stabilizing disturbed areas may be required on certain projects. If so, the type, manufacturer, and installation method for these products will be agreed to prior to installation.

PART 3 - EXECUTION

3.01 EXAMINATION:

I. General:

A. Verify that existing site conditions are as specified and indicated before beginning work under this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

B. All work is to be performed by personnel thoroughly familiar with proper and accepted methods for soil preparation, herbicide applications, fertilizing, seeding, mulching, etc. All work is to be performed under the direct supervision of the Contractor's superintendent, who shall be thoroughly familiar with the provisions of these specifications.

II. Damaged Earth: Inspect to verify that earth rendered unfit to receive planting due to concrete water, mortar, lime water or any other contaminant dumped on it has been removed and replaced with clean earth from a source approved by the Project Manager. All access roadways or compacted soil shall be ripped to loosen.

III. Unsatisfactory Conditions: Report in writing to the City.

IV. Acceptance: Beginning installation indicates acceptance of existing conditions by Contractor.

3.02 PREPARATION:

I. Protection:

A. Locate structures, playground equipment, sewer, water, irrigation, gas, electric, phone, cable TV, other pipelines or conduits and equipment prior to commencing work.

B. Be responsible for proper repair to landscape, utilities, walls, soft surface paths, pavements and other site improvements damaged by operations under this section.

II. Existing Vegetation:

A. Contractor shall keep a log of all pesticide applications preformed throughout the duration of the project, detailing applications. Notes shall be submitted to Owner at the completion of project.

B. Herbicides shall be applied using well maintained spraying equipment by individuals working for the Contractor who are appropriately licensed by the State or Federal agency having jurisdiction over such applications. It shall be the responsibility of the Contractor to be knowledgeable of any and all current laws and regulations pertaining to pesticide applications, and to advise the City immediately if any requests for applications made by the City are inappropriate as they pertain to these laws and regulations.

C. Herbicides and other chemicals shall not be applied during periods when wind or other physical conditions cause the herbicides to be transported off site, or a distance of more than five (5') feet from the immediate area where they are being applied. It shall be the responsibility of the Contractor to notify the Project Manager immediately if any weather or other physical conditions exist which would make application inappropriate.

D. All herbicides and other chemicals shall be applied at rates as determined by the Contractor and the Project Manager.

1. Bluegrass areas:
   a. Existing vegetation, excluding trees and shrubs, in all areas designated to receive new bluegrass seed, is to be sprayed with a contact non-selective post emergent herbicide (Roundup), a minimum of one (1) week and a maximum of (3) weeks prior to the ripping/tilling process.
2. Native areas:
   a. New seeding areas: Existing vegetation, excluding trees and shrubs, in all areas designated to receive new native seed mixes, shall be sprayed with a contact non-selective post emergent herbicide (Roundup), a minimum of one (1) week and a maximum of (3) weeks prior to the ripping/tilling process.
   b. Over seeded areas: Spot treatment with selective post emergent herbicides may be required to eliminate undesirable vegetation in some areas. Coordinate herbicide application with the Project Manager a minimum of two (2) weeks prior to the seeding operation.
3. Reapply herbicide if necessary to insure complete kill of existing vegetation.

III. Surface Grade: Remove existing grass, weeds, debris and rocks larger than one and one half-inches (1½") in all areas designated to receive seed. Verify that all rough grades have been established.

IV. Runoff: Take measure and furnish equipment, materials, and labor necessary to control the flow, drainage and accumulation of water on and off the site, as intended by the grading plans.

V. Erosion Control: Take measure and furnish all labor, materials, and equipment necessary to control and prevent soil erosion, blowing soil and accumulation of wind-deposited material on the site throughout duration of work.

3.03 INSTALLATION:

I. SOIL/SEED BED PREPARATION:

A. General: All ripping and tilling operations shall be done in a direction which follows the natural contours of the land on slopes of 3:1 or less. Soils on slopes greater than three 3:1 will be prepared for planting in a manner specified by the City. Any irregularities in the ground surface resulting from soil preparation operations shall be corrected and sloped to drain as intended by the grading plans.

B. Ripping/Tilling:

1. Any required soil amendments (e.g. organic soil conditioners, fertilizer, ect.) shall be uniformly spread on the surface of soil which is to be prepared as stated below and at the rates specified in section 3.03; II and 3.03; III, below.
2. Soil shall be ripped or tilled to a minimum of eight inches (8"), with agricultural sub-soiler in all areas to receive seed. This includes any areas compacted by construction traffic during the construction process, with four (4) passes in at least two (2) directions.
3. In areas where extremely stiff materials, or if debris is encountered during ripping, re-adjust equipment to avoid bringing up chunks of un-tillable material.
4. The soils shall be worked until it has become loose and friable and no clods greater than two inches (2") in diameter remain, unless directed otherwise by the Project Manager, prior to the addition of any soil amendments, seed, or mulch.
5. Remove stones larger than one and one-half inches (1½") in any dimension and sticks, roots, rubbish, and other extraneous matter.

II. Soil Amendments:

A. Blue Grass Areas: Evenly distribute composted material in the bluegrass seed areas at the following rates:

1. Apply the compost at four (4) cubic yards per one thousand (1,000) square feet.
2. Spreading the compost shall be accomplished with either a truck or trailer mounted spreader, capable of being adjusted to apply varying rates of material at a given speed.

B. Native Seed Areas: Evenly distribute composted material in the native seed areas at the following rates:

1. Apply the compost at two (2) cubic yards per one thousand (1,000) square feet.
2. Spreading the compost shall be accomplished with either a truck or trailer mounted spreader, capable of being adjusted to apply varying rates of material at a given speed.
3. In areas inaccessible with a truck or trailer mounted spreader, the compost can be delivered and spread with a tractor and/or by hand.

C. Over Seeding Native Seed into existing vegetation:
   1. No compost will be required in these areas.
   2. Fertilizer shall be spread evenly on the surface of the soil immediately after seeding operations have been completed. All fertilizer shall be applied using standard application equipment at the rates specified.

III. Fertilizer:
   A. See 2.01; II above.
   B. Areas receiving organic soil amendments:
      1. After applying soil amendments and fertilizer, thoroughly till area to a depth of six inches (6") minimum by rototilling, plowing, harrowing, or disking until soil is well pulverized.
   C. Fill, compact and grade the site to within +/- 0.1' (1 3/16 ") of grades indicated and specified.

IV. Fine Grading in all areas to receive seed:
   A. Do fine grading for areas prior to seeding: Perform as required to maintain positive drainage, prevent ponding and direct run-off into catch basins, drainage structures, etc. and as required to provide smooth well-contoured surface prior to proceeding.
   B. Prior to Acceptance of Grades: Hand-rake to a smooth even surface with a loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions. Remove debris, clods, rocks, vegetable matter, and any other objects that may interfere with planting or maintenance operations. Limit fine grading to areas that can be planted in the immediate future.
   C. Establish finish grades to within one-half inch (½") of grades indicated.
   D. Noxious weeds or parts thereof shall not be present in the surface grade prior to seeding.
   E. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow the surface to dry before planting. Do not create muddy soil.
   F. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Leave graded surface clean and free of trash and debris. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.04 SEEDING:
I. The Contractor shall notify the Project Manager prior to any seeding work.

II. The Project Manager will be on site during seeding operations, and will collect representative samples of the seed used on the project for possible later testing for contract compliance.

III. All prepared areas, need to be firm, but not compacted, prior to seed application.

IV. Bluegrass Areas:

A. Sow Bluegrass mix at a rate of 5 lbs. per 1,000 sq. ft.
B. Sow turf grass seed using mechanical Type 3 drill, (Brillion) seeding machine for slopes 4:1 and flatter.
   1. Distribute seed evenly over entire area by sowing equal quantities in two directions at right angles of each other.
   2. For areas inaccessible to seeding machines, or areas with slopes steeper than 4:1, use broadcast method. See 3.04; VI below.

V. Native Areas:
A. Seed the listed varieties in the areas designated on the drawings.
B. All seed is to be drilled 0.25 inch to 0.50 inch into the soil at the specified PLS/acre rate listed in the Seed Mix Schedule, with a mechanical, power-drawn drill seeder. Rows shall be spaced not more than eight inches (8") apart.
C. The contractor shall drill equal quantities in two directions at right angles of each other.
D. Seeding rates need to be increased 50% on slopes 6:1 or greater.
E. Seeding rates need to be increased 100% for areas that are seeded by hand broadcasting.
F. Seeding native grasses into existing vegetation, or areas that have not been ripped and tilled to a minimum of 6 inches require the use of a seeder with:
   1. Double Disc openers with depth bands.
   2. Native Grass Seed Box with agitator and picker wheels.
   3. Press wheels.
   4. In hard ground areas, the Project Manager may require the use of a, no till Coulter unit.
G. A cultipacker seeder (Brillion, Trillion type) is acceptable to use in well prepared (fine and firm) seed bed applications.
   1. The seeder should be equipped with seed boxes to handle the type of seed being planted.
   2. Native grass seed would need a seed box with an agitator and picker wheels.
   3. Seeding rates would need to be increased 50% with a cultipacker seeder since it is a broadcasting application.

VI. Broadcast Seeding: Some areas may be inaccessible to a drill. In these mutually agreeable areas, seed shall be uniformly broadcast at 2 times the specified rate. Seed is to be evenly distributed and sown in equal quantities, in two directions at right angles to each other. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Hand broadcasted seeded areas need to be raked in to provide a minimum of ¼" cover and a maximum of ½" cover.

VII. Watering Newly Seeded Areas.

A. Bluegrass areas: Coordinate with Project Manager the irrigation controller settings to provide adequate moisture for seed germination, and to avoid erosion.

B. Native areas:

1. Some native areas may have irrigation available, in which case follow the guidelines for Bluegrass areas above.
2. Native areas without irrigation:
   a. Spring Planting: Plan the planting operation to start as soon as the soil can be worked and prior to the spring rainy season.
   b. Fall Planting: Place seed prior to the first hard frost in the fall, but after dormancy begins for the varieties being planted.

VIII. Companion Crops: Add the prescribed companion crop with the native seed mixes to be planted at the rate listed. If in doubt, coordinate with Project Manager.

IX. Erosion Protection:

A. Slopes of 6:1 or less require no erosion protection.

B. Protect seeded slopes exceeding 6:1 against erosion with jute or coir-fiber erosion-control mesh installed and stapled according to manufacturer's recommendations.

C. Protect seeded slopes exceeding 4:1 against erosion with erosion-control blankets installed and stapled according to manufacturer's recommendations.

3.05 SEED MIXTURE SCHEDULE:

I. Greeley Parks Mixes: Provide certified grass-seed blends or mixes, proportioned by weight, as follows. If the following mix is not available, contact the Parks Department for an approved mix, prior to proceeding:

BLUEGRASS SPECIES/VARIETY	% MIX	PURITY
Kentucky Bluegrass, Moonlight	30.00	85
Kentucky Bluegrass, NorthStar	30.00	85
Kentucky Bluegrass, Quantum Leap	30.00	85
Perennial Ryegrass	10.00	92

LOW GROW MIX Use a minimum 8’ wide on sides of pathways. Use at property lines abutting residential properties. Used in open areas where short grasses are desired.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Buffalograss	8.0
Blue grama	6.5

SLOPE MIX Used on all slopes and berms.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Sideoats grama	2.0
Blue grama	2.0
Little Bluestem	2.0
Sand dropseed	.06

OPEN SPACE MIX Used in open areas wher taller grasses are desirable.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Sideoats grama	2.0
Blue grama	2.0
Little Bluestem	2.0
Sand dropseed	0.2
Western Wheatgrass	2.0

POND MIX Used in and around detention/retention ponds, and in areas that are designed to hold water, but are not necessarily wet the majority of the time.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Little Bluestem	3.0
Yellow Indian Grass	2.0
Switchgrass	1.0
Blue grama	0.6
Sideoats grama	4.0
Prairie Sandreed	1.5
Western Wheatgrass	6.5

RIPARIAN MIX Used along irrigation ditches and in naturally wet areas.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Switchgrass	6.0
Reeds Canarygrass	6.0

RIGHT – OF – WAY MIX Used along public streets, in the right of way.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Buffalograss	6.4
Blue grama	0.6
Sideoats grama	3.6
Western Wheatgrass	9.6
Thickspike Wheatgrass	2.2
Slender Wheatgrass	2.2

Tree Lawn Mix For use in specified tree lawns	
SPECIES	POUNDS PER 1,000 sq/ft
Buffalograss 'Sundancer'	4.0
Blue grama 'Alma'	1.0

COMPANION CROP Add the appropriate companion crop to the native seed mixes to be planted.	
SPECIES	POUNDS PER ACRE – PURE LIVE SEED
Spring Planting: Oats	4.0
Fall Planting: Winter Wheat	2.0

3.06 NOTIFICATION AND INSPECTION:

I. Inspection: Provide notice to Owner requesting inspection at least seven (7) days prior to anticipated date of completion.

II. Deficiencies: If deficiencies exist, the City shall specify such deficiencies to the Contractor who shall make satisfactory adjustments and will again notify the City for final inspection.

3.07 CLEANING:

I. Cleaning: Remove and haul from the site all excess materials and debris generated during the construction process. Perform daily cleaning during installation of the work, and upon completion of the work. Clean paved and finished surfaces soiled as a result of work under this section. Clean out drainage inlet structures as required. Repair any and all damage.

3.08 PROTECTION:

I. General: Provide and install barriers as required and as directed by the City to protect the seeded areas against damage from pedestrian and vehicular traffic

until well established and accepted by the City. Provide any additional erosion control measures which are necessary for the successful establishment of grass areas.

END OF SECTION


CHANNELL
TRAFFIC
SIGNAL
TEMECULA. CA. U.S.A

BULK

TECHNICAL SPECIFICATIONS

Grade Level Box BULK ④

36”/914 mm depth

24”/610 mm depth

Now with SHIELD X™ Covers

FEATURES

- Upgradeable
- Lightweight/Strong (TIER 22)
- Patented Anti-Slip Technology
- Anti-Seize Bolt Technology
- Industry Leader in Anti-Trip Hazard Prevention
- Superior Fatigue Resistance (EST)™
- Vertical and Horizontal Rib Design
- Embedded Vertical Racking
- Reduced Installation Cost
- Highest Load Rating to Weight Ratio in the Industry

TESTING CRITERIA

Covers meet or exceed:

- EST™ 3 Million Cycles
- Telecordia GR-902-CORE
- Western Underground Committee Guide 3.6
- ANSI/SCTE 77 2013-TIER 22
- EN124 Class B125

Bodies meet or exceed:

- Telecordia GR-902-CORE
- Western Underground Committee Guide 3.6
- ANSI/SCTE 77 2013-TIER 22
- EN 124 Class B125/C250
- ASTM-457
- AASHTO M-306 (H-20/25)
- AS3996-Class B/C

BULK

TECHNICAL SPECIFICATIONS

Grade Level Box BULK ⑦

36”/914 mm depth

24”/610 mm depth

Now with SHIELD X™ Covers

FEATURES

- Upgradeable
- Lightweight/Strong (TIER 22)
- Patented Anti-Slip Technology
- Anti-Seize Bolt Technology
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- ANSI/SCTE 77 2013-TIER 22
- EN 124 Class B125/C250
- ASTM-457
- AASHTO M-306 (H-20/25)
- AS3996-Class B/C

PRODUCT SUMMARY

With over 90 years experience in global (OSP) infrastructure, Channell has developed the most advanced pit and chamber technology in the world! Channell's BULK and SHIELD patented designs with the complement of SUPER BULK for roadway applications offer global users, consumer, and craft installers safety benefits never before contemplated, but critical when considering new global health and safety standards.

BULK's lightweight design increases installation efficiencies while improving overall body weight carrying load capacities versus concrete, polymer concrete, and many other body materials. Reduction of BULK's body weight protects the safety of installers while shortening installation times. Additionally, with BULK bodies, cutting ducts in the field produces no harmful dust contaminants which could lead to installer respiratory issues.

All SHIELD covers meet or exceed 33,750 pound-force or 150 kilonewtons in strength. They never break and offer a lid weight reduction over concrete and polymer concrete of 50%, and over 70% when compared to cast iron. SHIELD's lighter weight design cover reduces craft injuries while improving health and safety specifications.

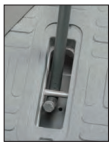
Consumers also benefit from SHIELD's patented anti-slip design and anti-trip features. SHIELD's cover tread design raises global industry standards by offering 20% greater slip resistance when compared to concrete, polymer concrete, steel or cast iron covers. SHIELD meets and exceeds Australia AS4586 skid specification, the highest global standard in the world!

Overall, BULK's strength in combination with Channell's SHIELD covers offers a universal solution to meet and exceed every company's needs. Safety always comes first, and that's why BULK and SHIELD are tested to the highest standards available in the global market and Channell is proud to have pioneered Endurance Stress Testing (EST™) which analyzes cover fatigue in the field. EST™ provides essential data on the life expectancy of a SHIELD lid in the field and confirms its potential life expectancy. Product design, product innovation, safety attributes, and new manufacturing technology is why global customers are specifying Channell's BULK and SHIELD products for their new OSP infrastructure requirements.

STANDARD FEATURES


Anti-Slip Tread Design


Anti-Trip Cover


Recessed Lifting Pin with Cover


Non-Seizing Bolt System Allows Field Replacement


Flush Mounted Sidewall Racks Increase Usable Space


Mounting Studs

Logo Puck (Custom Options Available)


Winterized Cable Drop Slide

OPTIONAL FEATURES


L-Bolt Security System (SHIELD Cover Shown)


Marker Locator Device


Swing-Arm with Butterfly Mounting Plate


Cable Hook Bracket


Step Bracket with Wedge

Design and specifications may vary.

THE NEW SOLUTION

HDPE Plastic Cover
Light Duty 3,000 lbf (13.5 kN)

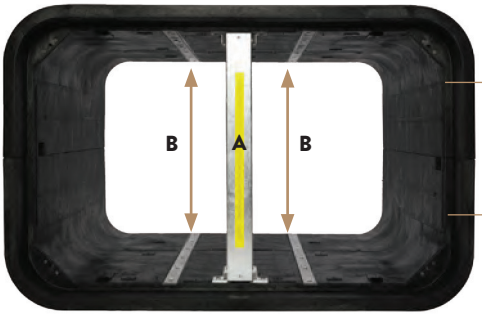
Composite Cover
33,750 lbf (150 kN)

Ductile Iron Cover with Steel Ring
56,200 lbf (250 kN)
Available early 2017

BULK Vault Body
60,000 lbf (267 kN)

SPECIFICATION	PROOF LOAD	PRODUCTS
AMERICAS	**STANDARDS**	
Pedestrian/Light Duty	3,000 lbf (13.5 kN)	BULK
ANSI/SCTE 77 TIER 15	22,500 lbf (100 kN)	SHIELD X BULK
ANSI/SCTE 77 TIER 22	33,750 lbf (150 kN)	SHIELD X BULK
AASHTO M-306-10 H 20	40,000 lbf (178 kN)	SUPER BULK
AASHTO M-306-10 H 25	50,000 lbf (222.4 kN)	SUPER BULK
ASTM-457	46,000 lbf (205 kN)	SUPER BULK
EMEA	**STANDARDS**	
Pedestrian/Light Duty	2,250 lbf (10 kN)	BULK
EN 124 Class B125	28,100 lbf (125 kN)	SHIELD X BULK
EN 125 Class C125	56,200 lbf (250 kN)	SUPER BULK
APAC	**STANDARDS**	
Pedestrian/Light Duty	3,370 lbf (15 kN)	BULK
AS3996-Class B	18,000 lbf (80 kN)	SHIELD X BULK
AS3996-Class C	33,750 lbf (150 kN)	SHIELD X BULK

BODY DESIGN



A Crossbar Support
B Standard flush mounted sidewall racks

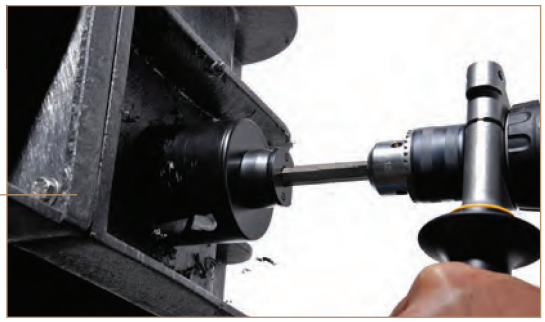
Straight wall design improves lid load strength.

Flush mounted racks enhance sidewall and vertical strength of pit while increasing usable space.

Ribbed sidewall design secures body into backfill soil and eliminates sidewall deflection.

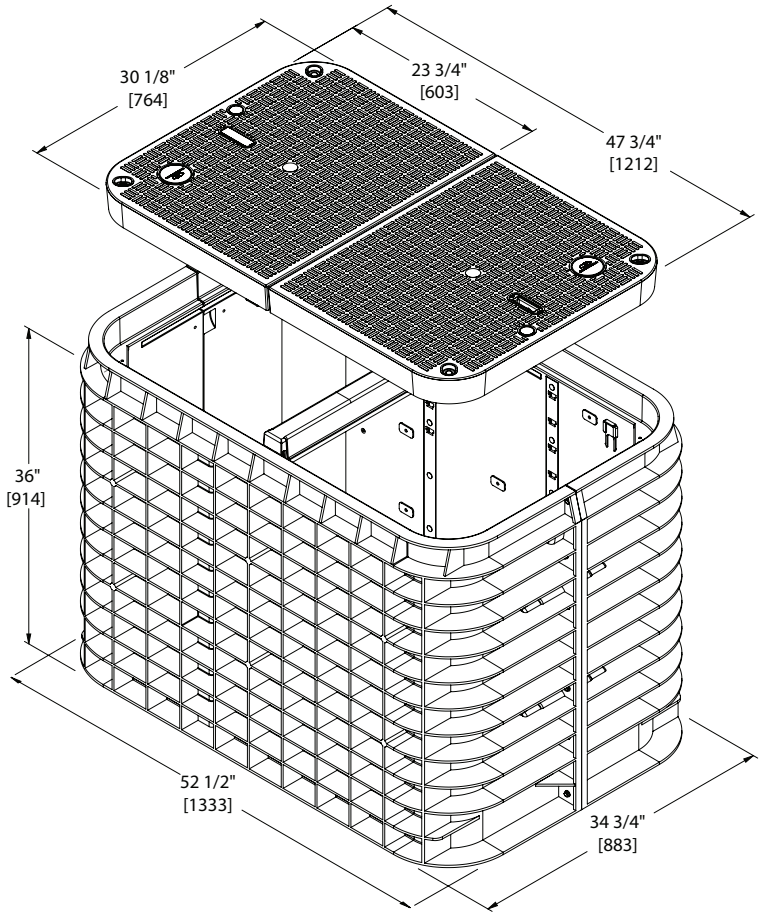
Stainless steel tube is constructed into sidewall of pit to prevent sidewall deflection on BULK bodies 24" (610 mm) and deeper.

HDPE bodies provide easy field alteration while eliminating water absorption and material degradation while maintaining structural integrity, and eliminating toxic fiberglass dust.



BODY SPECIFICATIONS

Cover Weight (Split 1/2 Cover)	50 lbs	[23 kg]
Pit Weight	129 lbs	[59 kg]
Assembled Weight	229 lbs	[105 kg]

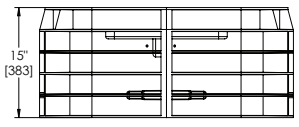


Drawing shown with

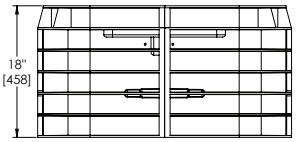
Composite Cover

BULK 7 Vault Body
36" [914 mm] Depth
Shown

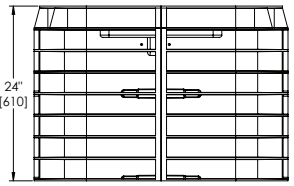
ADDITIONAL BODY DEPTHS



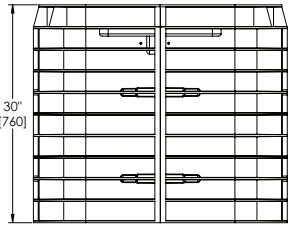
56 lbs [26 kg]



67 lbs [30 kg]



88 lbs [40 kg]



108 lbs [49 kg]

MADE IN USA

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