TG13.1 – Roof Park Landscaping and Irrigation

Questions are numbered in the order received. Numbers missing in the sequence either have been answered in a previous response set or will be answered in a future set.

Question No.	Submission Date	Drawing No.	Document/ Spec. No.	Question	Response
TG13.1-062	4/16/2015	32 01 90, 1.5.B and 2.1.A		Confirm that MRc5 requirements for specification 32 01 90, 1.5.B and 2.1.A should include MRc5 Option 2 language, similar to LEED requirements in other specifications.	Please refer to attached SKLA-416 for clarification.
TG13.1-078	4/28/2015	A1-8851		Please provide a specification for the 1" Rigid Insulation (EPS) called out on A1-8851.	Refer to attached sketch SKA-4668 and attached Specification Section 07 21 00 markup for clarification.
TG13.1-079	4/29/2015	05 60 00, Part 1.1.A.6. Park Level Handrails, A1-2604, 2/A1-7013		We are requesting clarification as to which Trade Subcontractor is responsible for furnishing and installing the Handrails at Stair 401.	The handrail at stair 401 will be furnished by the TG07.5R Trade Subcontractor and installed by the TG13.1 Trade Subcontractor.
TG13.1-080	4/29/2015	A1-8851 Details 1 - 4, 7		In these various Details, there is Highlighted 1" Rigid Insulation (EPS) to be installed along the Walls and around the WPM-3 at Buried Structure-Type, per Detail 2. We are requesting clarification as to which Plans these Walls and Buried Structures are shown on and the Specification Section Number for the Rigid Insulation (EPS). Also, is the 1" Rigid Insulation (EPS) to be installed in addition to the ¾" Plywood and ½" Protection Board as shown in Details 1 and 2 on Sheet L1-9664?	Refer to the TG13.1-078 response for clarification to insulation drawing and specification. Rooftop Park perimeter walls and buried structures can be found in the Architectural Slab Edge Plans (A1-2902 to A1-2907) and Protection Slab Plans (A1-2912 to A1-2917). The 3/4" plywood shown on 1 & 2 on L1-9664 is to be installed over the INS-1 insulation shown in detail 2/A1-8851. The 1/2" protection board shown on L1-9664 and L1-9665 has been deleted from the details; please refer to the response in TG13.1-059 for clarification.
TG13.1-081	4/29/2015	05 60 00, Part 2 - Products; 2.4.C, L1-2606, 5/L1-9660		We are requesting clarification if there is to be a Paving Retention Angle installed at the Vine Planters adjacent to Stair 601 on Sheet L1-2606.	Retention angles are not required at concrete paving and vine planters edge. Refer to attached SKLA-413.1 and SKLA-413.2 for clarification.

TG13.1-082	4/29/2015	L1-2631 Detail 2		We are requesting clarification if the Companion Seating Symbols are part of this Trade Package, as shown on the Park Level Material Plan Sheets L1-2602 through L1-2607. If they are to be included in this Trade Package, then please provide the Specification Section as to the type of materials and how they are to be applied to the Resin Aggregate Paving.	The companion seat symbol is shown on the plans for graphic reference only and it is NOT intended to be a physical symbol applied to any surface.
TG13.1-083	4/29/2015	04 43 00, Part 2 - Products; Item 2.3.C, 1/L1-9625		We are requesting clarification if the Visual Contrast Stripe, per Detail 3 on Sheet L1-8634, is to be installed only in the Center Row of the Stone Planter.	The stone planter is not intended to have a visual contrast stripe. The callout on L1-9625 has been deleted. Refer to the attached SKLA-407 for clarification.
TG13.1-084	4/29/2015	05 60 00, Part 2 - Products; Item 2.3.J, 1/L1-7670, 1/L1-7671		In this Detail Note #2 states "Install R-1673-A Floating Manhole Cover as available from Neenay Foundry Company." However, there is a callout for a "Solid Manhole Cover Lid-Neenah Foundry Company Product #R-6461-FH, Slab type" in the same Detail. We are requesting clarification as to which Model/Product Number is to be installed, R-1673-A Floating Manhole Cover or Solid Manhole Cover Lid Product #R-6461-FH, Slab Type.	Please use R-1673-4 Floating Manhole Cover with Solid Manhole Cover Lid and refer to the revised callouts on attached SKLA-408.1 and SKLA-408.2.
TG13.1-085	4/29/2015	32 91 00, Part 3 - Execution; Item 3.2.E.1, 1/L1-9668		In this Detail, there is a callout to install an Aggregate Drainage Course typical at 6" Depth. However, in Specification Section 32 91 00 Planting Soil Mixes Preparation; Part 3 – Execution; Section 3.2 Placing Planting Soil Mixes; Item E.1. it states "A minimum of eight inches of 3/4-inch Crushed Stone shall be placed over the Sand-Based Structural Soil in sidewalk areas as per Drawings". We are requesting clarification as to which depth the ¾-inch Crushed Stone is to be, 6" per the Detail or a minimum of 8" per the Specifications.	The depth of the ¾-inch crushed stone is to be 8" per the specifications. Please see revised callouts on attached SKLA-409.

TG13.1-086	4/29/2015	32 91 00, Part 2 - Products; Item 2.4.C.5, 8/L1-9660		We understand we are responsible for determining the amount of Fiber Reinforced Soil required. In this Detail, the depth is shown as 1'-6" minimum for the Soil Profile at Stair Mounds, which is to be Fiber Reinforced Soil. However, in the General Park Level Soils Plan Legend on Sheet L-0005, the depth is shown as 2'-0" average depth Soil Profile – Reinforced Soil for Mounds. We are requesting clarification to which is correct the 1'-6" minimum or 2'-0" average depth.	The correct depth of Fiber Reinforced Soil is 1'-6" minimum. Refer to attached SKLA-410.1 and SKLA-410.2 for clarification.
TG13.1-087	4/29/2015	32 91 00, Part 2 - Products; Item 2.4.C.5, 3/L1-9675		In this Detail, it shows Drain Mat and Geotextile, and a Sand Drainage Layer @ 2" depth to be installed over the Stair 601 4" Protection Slab. Upon comparing the Finish Grade Elevations shown on Sheet L1-3606 at the top of Stair 601 Mound and the top Lightweight Fill Elevation shown on Sheet L1-5606, there appears to be 3'-0" depth of Reinforced Soil over the Lightweight Fill. This being the case, we are requesting clarification if the Drain Mat and Geotextile, and the Sand Drainage layer @ 2" depth is still to be installed over the top of the Protection Slab since there is Lightweight Fill being installed prior to the placement of the Reinforced Soil.	Install drain mat, geotextile and sand drainage layer over geosynthetic fill. Refer to attached SKLA-412 for clarification.
TG13.1-088	4/29/2015	32 15 00, Part 2 - Products; Item 2.3.A & B, L-0004		In Specification Section 32 15 00 Aggregate Surfacing; Part 2 – Products; Item 2.3 Materials, there are specified Aggregate Mulch Type 'A' and Aggregate Mulch Type 'B'. However, in the General Park Level Material Plans Legend on Sheet L-0004, the Aggregate Mulch is shown as Type I and Type II. We are requesting clarification if Type I is to be Type 'A', and Type II is to be Type 'B' per the Specifications.	Confirmed, see attached LSK-414 for clarification.

TG13.1-090	4/29/2015	32 15 00, Part 2 - Products; Item 2.3.A & B, 2/L1-9667		We are requesting clarification if Weed Barrier and Aggregate Mulch @ 3" depth is to be installed the planting area adjacent to the Bamboo Basin between GL 22 and 24, and GL F.7 and G. Please see Sheet L1-6605 for the Trees to be planted in this Area.	The weed barrier is intended to be used over geosynthetic fill only, not planting soil.
TG13.1-091	4/29/2015	32 93 00, Part 2 - Products; Item 2.4.A, L1-6607, L1-6637		On Sheet L1-6637 Park Level Zone 07 Irrigation Plan, Phase I, it shows bubblers being installed in the Green Screen Planter Areas around the Elevator Building. However, on Sheet L1-6607 Park Level Zone 07 Tree Planting Plan, Phase I there are no Vines shown to be installed in the same Planter Areas. Please clarify if Vines are to be installed.	Vines are to be installed by this Trade Subcontractor, refer to attached SKLA-411 for clarification.
TG13.1-092	4/29/2015	QBD TG13.1-021, SKLA.1 Rev. 01		We are requesting clarification, if this Trade Package Subcontractor is to provide the trenching for the Utility Corridors under the Building area located between GL 4 and 6, and C.3 and D as shown on SKLA 379.1 Rev. 01 in Yellow Highlight.	Trenching for the utility corridor is not required within the structural foundation walls of the Rooftop Park Restaurant or Rooftop Park Café.
TG13.1-093	4/29/2015	L-0007, L-0008, L1-6622 through L1-6627		Please indicate on planting plans where the following plants from plant legend are: C, Acs, Az, BD, as (Arctostaphylus 'Sentinal'), KB, MM, MY, cP, HS, LP	Refer to attached SKLA-417.0 through 417.7 for clarification: For plant locations of C, Acs, Az, KB, and HS, please refer to SKLA-417.2. For plant locations of BD please refer to SKLA-417.3. For plant locations of MM and cP, please refer to SKLA-417.4. For plant location of MY and LP, please see SKLA 417.6. The legend of "as (Arctostaphylus 'Sentinal')" has been revised to "aS." For plant location of aS, refer to SKLA-417.0.
TG13.1-094	4/30/2015	L1-6622		Between gridlines 1.1 & 1.4 and between gridlines G & H: 2 plant symbol areas do not have plant callouts, please provide plant callouts for these locations.	Refer to attached SKLA-417.2 enclosed in the TG13.1-093 response for clarification. The missing plant callouts have been added.
TG13.1-095	4/30/2015	L1-6622		At gridline 2 and between gridlines G & H, please clarify "FS" plant callout – is this to be plant callout "Fs" in the plant legend?	Refer to attached SKLA-417.2 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "Fs."
TG13.1-096	4/30/2015	L1-6622		At gridline 2 and gridline B: please clarify plant callouts "du" & "RL" plant symbol does not correctly represent container size of each plant in plant legend.	Refer to attached SKLA-417.2 enclosed in the TG13.1-093 response for clarification.

TG13.1-097	4/30/2015	L1-6622		At gridline 4.5+/- and gridline B: Plant symbol area does not have a plant callout; please provide plant callout for this location.	Refer to attached SKLA-417.2 enclosed in the TG13.1-093 response for the missing plant callout.
TG13.1-098	4/30/2015	L1-6623		Between gridlines 6 & 7 and gridlines A & B: please clarify plant callout "CR" as the symbol is not the same size as the same "CR" symbol on sheet L-6622.	Refer to attached SKLA-417.3 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "CeC."
TG13.1-099	4/30/2015	L1-6623		Between gridlines 6 & 7 and gridlines A & B: please clarify the single plant symbol with plant callout "id" as this plant symbol is not same size as the other plant symbols with the same "id" plant callout in the same area.	Refer to attached SKLA-417.3 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "RC."
TG13.1-100	4/30/2015	L1-6623		At gridline 6 and gridline 3: please clarify the plant callout "Ei" as there is no "Ei" in the plant legend.	Refer to attached SKLA-417.3 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "El."
TG13.1-101	4/30/2015	L1-6623		Between gridline 7 & 8 and gridlines B & C: please clarify plant callout "aS" as there is no "aS" in plant legend.	Refer to attached SKLA-417.0 enclosed in the TG13.1-093 response for clarification. Callout "aS" has been added to the plant legend.
TG13.1-102	4/30/2015	L1-6623, L1-6627		At gridline 11 and gridline H: plant symbol area does not have plant callout; please provide plant callout for this location.	Refer to attached SKLA-417.3 enclosed in the TG13.1-093 response for the missing plant callout.
TG13.1-103	4/30/2015	L1-6623, L1-6627		Between gridlines 32.4 & 33 and between gridlines E.6 & F: please clarify the plant callout "jp-w" as there is no "jp-w" plant in the plant legend.	Refer to attached SKLA-417.7 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "Jp-w."
TG13.1-104	4/30/2015	L1-6624		Between gridlines 14 & 15 and gridline A: please confirm "TP" plant callout is to be "Tp" in the plant legend.	Refer to attached SKLA-417.4 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "Tp."
TG13.1-105	4/30/2015	L1-6624		Between gridlines 15 & 16 and gridlines C.3 & F: please clarify if this is the correct plant callout for this location.	The plant callout shown on the indicated location is correct.
TG13.1-106	4/30/2015	L1-6624		Between gridline 15 and gridlines G & H: please clarify plant callout "Cp" as the symbol is not the same size as the "Cp" symbol on sheet L-6623 (gridline 10.1 and gridline H).	Refer to attached SKLA-417.4 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "cP."
TG13.1-107	4/30/2015	L1-6624		At gridline 17.75 +/- and gridline H: please clarify plant callout "LM" as this symbol is not the same size as the "LM" plant symbols just to the west (gridline 17 and gridline H).	Refer to attached SKLA-417.4 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "MM."
TG13.1-108	4/30/2015	L1-6624, L1-6625, L1-6626		Between gridline 18.5+/- and between gridlines J & K: please clarify the plant callout "ACl" as there is no "ACl" plant in the plant legend.	Refer to attached SKLA-417.4 enclosed in the TG13.1-093 response for clarification. The callout has been revised to "AC."
TG13.1-109	4/30/2015	L1-6624, L1-6625, L1-6626		Between gridlines 19 & 19.9 and at gridline G: please confirm "iF" plant callout is to be "IF" in the plant legend.	Please refer to attached SKLA-417.1 enclosed in the TG13.1-093 response for clarification. The plant legend shows "iF": lowercase i, uppercase F.

TG13.1-110	5/1/2015	L1-6624, L1-6625, L1-6626		At gridline 24 and at gridline H: please provide quantity of plant callout GC-Nr.	Refer to attached SKLA-417.5 enclosed in the TG13.1-093 response for the missing quantity.
TG13.1-111	5/1/2015	L1-6624, L1-6625, L1-6626		At gridline 28 and between gridlines G & H: please confirm "PF" plant callout is to be "Pf" in the plant legend.	Refer to attached SKLA-417.1 enclosed in the TG13.1-093 response for clarification. Location "PF" has been added to the plant legend.
TG13.1-112	5/1/2015	L1-6626		Between gridlines 29 & 31 and between gridlines B & C: please clarify the plant callout "Rp" as there is no "Rp" plant in the plant legend.	Refer to attached SKLA-417.1 enclosed in the TG13.1-093 response for clarification. Location "Rp" has been added to the plant legend.
TG13.1-113	5/1/2015	L1-6626		At gridline 30.5 +/- and between gridline G & H: please clarify plant callout "Zf" as this symbol is not the same size as the "Zf" plant symbols just to the west (gridline 30 and between gridline G &H).	Refer to attached SKLA 417-6 enclosed in the TG13.1-093 response for clarification.
TG13.1-114	5/1/2015	L1-6626		At gridline 31 and between gridlines G & H: please clarify plant callouts "da" and "da-24" as the plant symbols do not correctly represent container size of each plant in plant legend.	Refer to attached SKLA 417-6 enclosed in the TG13.1-093 response for clarification.
TG13.1-115	5/1/2015	L1-6626		At gridline 31 and between gridlines G & H: plant symbol does not have a plant callout, please provide a plant callout for this location.	Refer to attached SKLA 417-6 enclosed in the TG13.1-093 response for the missing plant callout.
TG13.1-117	5/1/2015		Exhibit A - Roof Park Utility and Branch	Per Exhibit A "furnish and install roof park utility corridor trench through geosynthetic fills including…sleeves. Please confirm the exact scope of this package (i.e. per T-2173 response); are we required for just the excavation in the geosynthetic fill, and the elastizell backfill with all the conduit and racks installed by others? Is the sleeving referring to penetrations only?	Utility corridor conduit and racks will be installed by the TG10.4 Electrical Trade Subcontractor. The TG13.1 Trade Subcontractor shall create and fill the void space for the utility corridor and account for any sleeves required at penetrations.

TG13.1-119	5/6/2015		Exhibit A - Roof Park Substructure	Per paragraph 5 of Exhibit A. "Provide reinforcement and embeds to be installed in the Roof Park topping Slab by TG07.6." Please confirm that this is only for the embeds for our footings such as the signage footings, monument footings, boulder footings, and security pylon footings, and not the actual reinforcement in the topping slab. Also confirm that the footings (as shown on A1-2912 to A1-2917 with TOW dimensions) at the vaults and CMU walls are by TG07.6. Finally, is the vertical rebar connection these footings to the CMU walls (as shown on sheet L17610) provided and installed by TG07.6?	The TG13.1 Trade Subcontractor shall furnish reinforcement starter bars and embeds as required for their work connected to the protection slab (i.e., CMU walls, precast roof drain enclosures, etc.) to the TG07.6 Trade Subcontractor for installation. The TG13.1 Trade Subcontractor shall ensure all items are correctly installed. Embeds for signage and monument boulder footings will be provided by the TG17.1 Trade Subcontractor. Embeds for the security pylon footings will be provided by the TG10.4 Trade Subcontractor and protection slab reinforcement will be provided by the TG07.6 Trade Subcontractor. Concrete footings, integral to the protection slab, on sheets A1-2912 through A1-2917, will be provided by the TG07.6 Trade Subcontractor. As stated in Exhibit A, IV Scope of the Package and Bid Item Information, 3. Base Bid Item Scope, Roof Park Substructure, the TG13.1 Trade Subcontractor shall "Furnish and install footings above the Roof Park Level reinforced topping slab including, but not limited to, utility bollard footing, drinking fountain footings, stair footings, rail footings."
TG13.1-121	5/6/2015	A1-8649, A1-8648	Exhibit A - Roof Park Hardscape	Per Roof Park Hardscape TG13.1 is required "to furnish and install concrete stairs 401…" Please confirm per 3 on sheet A1-8649 that the Rigid Insulation, Drain Board, PVC Protection Layer, WPM-3, and subslab are by others. Also please confirm that per detail 8 on sheet A18648, the 4" SS mounting base, for the handrails) will be supplied and installed by others.	For Detail 3/A1-8649, the TG07.6 Trade Subcontractor will install the subslab. The waterproofing and PVC protection layer will be installed by the TG13.2 Trade Subcontractor. The TG13.1 Trade Subcontractor shall install the drain board and rigid insulation The handrail at stair 401 will be furnished by the TG07.5R Trade Subcontractor and installed by the TG13.1 Trade Subcontractor.

SECTION 32 01 90 – LANDSCAPE MAINTENANCE PERIOD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Monitoring and Maintenance of Plant Material.
2. Monitoring and Maintenance of Irrigation Systems.
3. Mulch.
4. Aggregate.
5. Fountains.
6. Hardscape Surfaces.
7. Furnishings Maintenance.
8. Grade Restoration.
9. Vandalism.

1.2 REFERENCES

A. ANSI — American National Standards Institute:

1. Z60.1 — American Standard for Nursery Stock, Current Edition.
2. A300 — Tree, Shrub, and Other Woody Plant Maintenance, Standard Practices, Current Edition.

B. ICBN — International Code of Botanical Nomenclature.

C. ICNCP — International Code of Nomenclature of Cultivated Plants.

D. ASTM — American Society for Testing Materials: D 1557 — Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

1.3 DEFINITIONS

A. IPM — Integrated Pest Management: An approach to pest control that utilizes regular monitoring to determine if and when treatments are needed and employs physical, mechanical, cultural, biological and educational tactics to keep pest numbers low enough to prevent intolerable damage or annoyance. Least-toxic chemical controls are used as a last resort.

B. Excessive Compaction: Planting Medium compaction greater than specified in Section 32 91 00, part 3.2.C-2

1.4 INFORMATIONAL SUBMITTALS

A. Planned Schedule of Work.

B. Product Purchase and Delivery Documentation: Fertilizer—Within 5 working days of each application submit purchase orders, invoices and receipts showing supplier name and address, person who sold product, date of purchase, specific product purchased, quantity purchased, and delivery date.

C. Documentation of Accepted Conditions: Within 7 working days after the TJPA's acceptance of maintenance responsibility, submit color photographs and a written report documenting the accepted conditions of the plant material.

D. Inspection Reports: Monthly plant inspection report documenting signs of stress. Monthly maintenance reports indicating tasks preformed, equipment used, material required, and manpower required. Monthly maintenance reports to be broken down by week.

E. Soil Reports: Soil testing for plant nutrient availability for plants not performing well prior to the application of fertilizer.

1.5 SUBMITTALS – LEED SUBMITTALS

A. Within 30 days of Contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheets" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.

B. ~~***1* . . .DELETED** Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within 500 air miles of the Project Site.~~Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]."

~~C. **Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]. . . . *1***~~

1.6 QUALITY CONTROL

A. Landscape Maintenance Contractor Qualifications:

1. Demonstrated experience in maintenance of commercial landscape projects of similar size and scope with owner references
2. Must provide the same foreman throughout the 2-year period.
3. Demonstrated experience in landscape maintenance supervision, with experience and training in integrated pest management, turf management, entomology, pest control, soils, fertilizers and plant identification.
4. Thoroughly familiar and trained in the work to be accomplished and perform the task in a competent efficient manner.
5. Must directly employ and supervise the Work force at all times.
6. Must notify the TJPA's Representative of changes in personnel.
7. Must provide proper identification for landscape maintenance firm's labor force.

B. Regulatory Requirements:

1. Meet requirements of applicable laws, codes, and regulations required by authorities having jurisdiction over Work.

2. Provide for inspections and permits required by Federal, State, or local authorities in furnishing, transporting, and installing of chemicals.
3. Submit a record of herbicides, insecticides and disease control chemicals used to the County Agricultural Commissioner's Office as required by law.

1.7 SITE CONDITIONS

A. Environmental Requirements: Do not apply chemicals during windy conditions (in excess of 20 miles per hour).

1.8 SEQUENCING AND SCHEDULING

A. Work Schedule:

1. Perform maintenance during normal working hours.
2. Be present at the project site at least once a week and as often as necessary to perform specified maintenance.

B. Chemical Applications:

1. Notify the TJPA's Representative in advance of required chemical applications.
2. Obtain the TJPA's Representative's approval of application schedule.
3. Apply pesticides and other synthetic chemicals only as a last resort after exhausting all proposed IPM options and upon TJPA's approval.

PART 2 - PRODUCTS

~~2.1 LEED REQUIREMENTS~~

~~A. ***1 . . .*****DELETED** Credit MR5: Provide materials with minimum 50% final products being manufactured and having raw materials sourced within 500 air miles of the Project Site based on total weight of products.~~

~~B. **Credit MR 5: Provide concrete mixes with minimum 50% final products being sourced within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers]. . . . *1***~~

~~2.2.1~~ MATERIALS

A. Replacement Plant Material:

1. Match existing genus, species, cultivar and size. If matching specimen is not commercially available, propose substitution for review and approval by TJPA Representative.
2. Meet requirements of ANSI Z60.1, ICBN and ICNCP.

B. Seed: Match existing genus, species, varieties and cultivars.

C. Fertilizers for Lawn, Ground Cover, Shrub, and Tree Areas: As specified by the maintenance fertilization program accepted by the TJPA Representative.

D. Fertilizer Tablets for Replacement Plants: Commercially manufactured 8-month minimum slow-release NPK tablets with 12 to 20 percent nitrogen content. Use no Phosphorus at Proteaceae, Restionaceae, or Anigozanthus species.

E. Herbicides, Insecticides, and Fungicides: Legal commercial quality non-staining materials with original manufacturers' containers, properly labeled with guaranteed analysis, least toxic required.

F. Replacement Staking Materials: Same as original installation.

G. Mulch: Same as original installation.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protection of Existing Conditions:

1. Use every possible precaution to prevent damage to existing conditions to remain such as structures, utilities, plant materials and walks on or adjacent to the site of the Work.
2. Provide barricades, fences or other barriers to protect existing conditions from damage during maintenance operations.
3. Use every possible precaution to prevent excessive compaction of planting area soil within or adjacent to the areas of Work.
4. Do not store materials or equipment, permit burning, or operate or park equipment under the branches of existing plants.
5. Submit written notification of damaged plants and structures to the TJPA's Representative immediately.

3.2 GENERAL MAINTENANCE

A. Maintenance Period: Continuously maintain plants, planted areas, and irrigation system during progress of Work, and for a minimum period of 2 years after date of Final Completion and until the TJPA accepts maintenance responsibility.

B. Integrated Pest Management: Employ principles of integrated pest management for each aspect of maintenance through duration of maintenance period.

3.3 TREE AND SHRUB MAINTENANCE

A. General Watering:

1. Using a soil sample tube and tensiometers, check rootball moisture and surrounding soil moisture at representative plants at least twice a week.
2. Maintain watering basins around trees and shrubs so that enough water can be applied to establish moisture through root zones.
3. Open basins to allow surface drainage away from the root crown when excess water accumulates.
4. Adjust frequency and length of time for watering cycles according to changing soil and weather conditions and species requirements.
5. When required, apply supplemental water by hand using a water wand to break the water force.
6. Do not permit crown roots to become exposed to air through dislodging of soil and mulch.

7. Maintain depth of mulch to reduce evaporation and frequency of watering.

B. Settled or Leaning Plants: Reset plants to proper grades or upright position when weather and soil conditions permit.

C. Weed Control:

1. Keep mulched areas between plants weed free.
2. As a last resort use least toxic herbicides.
3. Avoid frequent soil cultivation that destroys shallow roots.

D. General Tree Pruning:

1. Meet requirements of ANSI A300 for Definitions, Pruning Tools and Equipment, Pruning Cuts, and Wound Treatment.
2. Perform crown cleaning to eliminate weak branches, water sprouts, dead growth, dying growth, diseased growth, and damaged growth.
3. Perform crown thinning to reduce toppling and wind damage.
4. Perform crown reduction and shaping to maintain growth within space limitations and maintain a natural appearance.
5. Retain lower branches in a “tipped back” or pinched condition to promote caliper trunk growth.
6. Do not cut back to fewer than six buds or leaves on branches.
7. Prune damaged trees or those that constitute health or safety hazards at any time of year.

E. Dust Removal:

1. Remove dust caused by construction traffic and operations from the foliage of plants as often as required to keep dust from having a detrimental effect on the health of the plants.
2. Remove dust by spraying with potable water.

F. Replacement of Plants: Replace, at no additional cost to the TJPA, and as soon as weather conditions permit, plants not in a vigorous, thriving condition, during and at the end of the maintenance period.

3.4 GROUND COVERS

A. Watering:

1. Using a soil sampling tube and tensiometers, check for moisture penetration throughout the root zone at least twice a week.
2. Water as frequently as necessary to maintain healthy growth of ground covers.
3. Adjust frequency and length of time for watering cycles according to changing soil and weather conditions.

B. Weed Control:

1. Maintain mulch layer.
2. Minimize hoeing of weeds to avoid plant damage.
3. As a last resort use least toxic herbicides required.

C. Fertilization During Growing Season:

1. Apply fertilizer as specified by the accepted fertilization program, after planting, until the TJPA accepts maintenance.
2. Meet requirements of fertilizer manufacturer's current printed instructions.
3. Apply fertilizers evenly over planting areas by spreading half the fertilizer in one direction and half in a direction 90 degrees to the first direction to assure even application.
4. Apply dry fertilizers with either a broadcast centrifugal or gravity spreader on planting bed areas.
5. Water planting areas thoroughly after application.

D. Replacement of Ground Cover: Replace, at no additional cost to the TJPA, and as soon as soil and weather conditions permit, ground cover plants not in vigorous, thriving condition, during and at the end of the maintenance period.

3.5 LAWN AND MEADOW

A. Watering:

1. Using a soil sampling tube and tensiometers, check for moisture penetration throughout the root zone at least twice a week.
2. Water lawns at such frequency as weather conditions require, to replenish soil moisture to 6 inches below root zone.
3. Provide a total of 1-1/2 inches of water weekly during hot weather, in 3 applications per week.
4. Water at night if irrigation system is electrically controlled. Otherwise, watering shall be done during early mornings.

B. Weed Control:

1. As a last resort, control broadleaf weeds with least toxic herbicides.
2. Coordinate application of herbicides with thatch control and reseeding schedule.

C. Mowing and Edging:

1. Mow Lawn to a height of 2 inches when it reaches a height of 2-1/2 inches.
2. Meadow – Reduce in height NO MORE than 1/3 of total length at times as directed by TJPA representative.
3. Trim edges at least twice a month or as needed for neat appearance for lawn.
4. Trim edges as directed by TJPA Representative for neat appearance for Meadow. Reduce in height NO MORE than 1/3 of total length.
5. Remove and dispose of grass clippings.

D. Fertilization During Growing Season:

1. Apply fertilizer as specified by the accepted fertilization program after planting until the TJPA accepts maintenance.
2. Meet requirements of fertilizer manufacturer's current printed instructions.
3. Apply fertilizers evenly over planting areas by spreading half the fertilizer in one direction and half in a direction 90 degrees to the first direction to assure even application.
4. Apply dry fertilizers with either a broadcast centrifugal or gravity spreader on planting bed areas.

5. Water planting areas thoroughly after application.

E. Aeration:

1. Core lawn areas up to twice annually when directed by the TJPA Representative in writing.
2. Use machine with 3/8-inch diameter by 4-inch maximum-length cores at spacing no closer than 4 inches on center.
3. Do not core lawn areas over top of tree root balls.
4. After aeration, fill holes with stabilized lawn soil mix.
5. Remove core plugs from lawn surface.
6. Coordinate aeration with subsurface irrigation.

F. Reseeding and Resodding of Lawn Areas: Replace, at no additional cost to the TJPA, and as soon as weather conditions permit, lawn areas not in a vigorous, thriving condition, during and at the end of the maintenance period.

3.6 INSECTS, PESTS, AND DISEASE CONTROL

A. General:

1. Employ principles of IPM in the selection of preventative and control measures for plant pests and diseases.
2. Insignificant pests will be tolerated providing they do not seriously threaten planting health and appearance.
3. Monitor the site closely and take timely action to address problems identified.
4. Use personnel licensed and experienced using materials approved by the EPA and conform to applicable laws, codes and regulations, under the direction of a licensed certified pest control operator.
5. Spray with extreme care to avoid hazards to any person, animal, or automobile in the area or adjacent areas.
6. Meet requirements of chemical manufacturer's current printed instructions.
7. The Contractor shall be held liable for plant damage due to the use of chemicals.

B. Inspection:

1. Inspect plant material weekly for signs of stress and damage.
2. Submit a written and photographic inspection report of findings monthly to the TJPA's Representative.

C. Spraying:

1. When necessary apply the least toxic chemical required for the existing problem.
2. Meet requirements of manufacturer's current printed instructions.
3. Apply sprays only if a pest or disease is a serious threat and cease application after problem is under control.

D. Fungicide Treatment of Lawn:

1. Apply Pythium damping-off fungicide immediately after seeding or sodding, according to label instructions.
2. Apply herbicide a second time 7-14 days later, and apply a third time 7-14 days after the second application.

3.7 IRRIGATION SYSTEM

A. Damages:

1. Repair at no additional cost to the TJPA damages to system caused by Contractor's operations.
2. Perform repairs before next irrigation cycle commences.

B. Cleaning and Monitoring the System:

1. Continually monitor the irrigation systems to verify that they are functioning properly as designed.
2. Clean filters and strainers at least once a month and as often as necessary to keep the irrigation systems free of sand and other debris.
3. Set and continuously adjust and program automatic controller for seasonal water requirement.
4. Make program adjustments as required by changing field conditions.
5. At least once a week, daily when required, use a soil sampling tube and tensiometers to check the rootball moisture of representative plants as well as the surrounding soil.
6. Prevent or minimize spraying on paving, windows, building walls, and other structures, by balancing the throttle control on the remote control valves and the adjustment screws on the sprinkler heads.
7. Do not allow water to atomize and drift.

3.8 AGGREGATE MULCH AND WOOD CHIP MULCH AREAS

A. Surface Smoothness: Smooth out finished surfaces of mulch twice monthly.

B. Weed Control:

1. Provide IPM written recommendations by Contractor to TJPA Representative prior to any use of chemicals.
2. Maintain areas weed-free.
3. As a last resort, control weeds with least toxic chemicals.

C. Mulch Replenishment: During the last month of the maintenance period, add mulch to settled areas to bring finished surfaces back to the levels indicated on the Drawings.

3.9 FIELD QUALITY CONTROL

A. Maintenance Review:

1. At the end of the two-year maintenance period, request the TJPA Representative to review Work.
2. Submit a written request at least five working days prior to the anticipated date of review.
3. If the TJPA Representative observes Work that fails to meet the Contract Document requirements the Contractor will receive written notification from the TJPA Representative of corrective Work preventing TJPA acceptance of the maintenance Work.
4. Perform corrective Work within 10 calendar days after the review.
5. Upon completion of the corrective Work, request the TJPA Representative to review the Work.

6. Corrective Work followed by TJPA Representative's review will be required until the TJPA Representative no longer observes Work not meeting the Contract Document requirements.

B. TJPA's Acceptance of Maintenance Responsibility:

1. When it appears to the TJPA Representative that the maintenance Work conforms to the requirements of the Contract Documents the Contractor will receive written notification designating the day which the TJPA will accept maintenance responsibility.
2. Continue maintenance of landscape Work until the date that the TJPA accepts maintenance responsibility.

END OF SECTION 32 01 90

SPECIFICATION ISSUE LOG

Revision	Date
0	03/31/14
1	12/16/14

TF 2015/03/25
pg 6 revisions to INS-2 info per Sandor ++

Additional markups to pg 6 INS-1 by Andy R on 2015/05/07 for RFIs TG13.1-078 & TG13.1-080

SECTION 07 21 00 – THERMAL AND SAFING BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes thermal insulation, to limit thermal gains and losses at the following locations:

1. ***1*** Building envelope, including, but not limited to the following locations: ***1***

a. Roof insulation specified elsewhere.
b. Doors.
c. ***1*** DELETED
d. DELETED ***1***
e. Louvers, except where blank-off panels occur.
f. Flexible Head and edge of Wall firestopping sealants and membrane.
g. ***1*** DELETED ***1***

2. Beneath the suspended concrete floor slabs where indicated, including beneath the radiant floor heating system.
3. Elsewhere as indicated.

B. Refer to Division 01 Specification Section 08 81 13, "General LEED Building Design & Construction Requirements" for additional LEED requirements, and to Section 09 80 00 for acoustical insulation.

C. Section also includes safing insulation for glazed assemblies of the building envelope.

D. In addition, the work of this Section also includes air sealing to supplement and provide continuity of main and primary air barrier assemblies, including sealing and/or filling perimeter of door and window openings, crevices, gaps, cracks in walls, roof/wall connections, mechanical and electrical penetrations in walls, floors, roofs, exterior glazed assemblies mullions, beams, columns enclosures and other similar locations with foam to provide air barrier integrity and impermeable barrier to air infiltration or loss.

E. Firestopping sealants are specified in Section 07 84 13, and sprayed thermal insulation in Section 07 21 80.

F. Refer to Division 01 Specification Section 08 81 13, "General LEED Building Design & Construction Requirements" for additional LEED requirements, and to Section 09 80 00 for acoustical insulation.

G. ***1*** DELETED ***1***

1.2 ABBREVIATIONS AND ACRONYMS:

A. AHJ: Authorities Having Jurisdiction.

B. LEED: Leadership in Energy and Environmental Design.

C. LTTR: Long Term Thermal Resistance.

D. MSDS: Material Safety Data Sheets.

E. BAAQMD: Bay Area Air Quality Management District.

F. SCAQMD: South Coast Air Quality Management District.

G. UL: Underwriters Laboratories Inc.

H. VOC: Volatile Organic Compound.

1.3 DEFINITIONS

A. General: In addition to definitions specified in Article 1.01 of the General Conditions, the following applies to this Section. Where the provisions are in conflict, the more restrictive requirements apply.

B. Thermal Resistance (R Value): Measure of thermal resistance. Under uniform conditions it is the ratio of the temperature difference across an insulator and the heat flux (heat flow per unit area).

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: Comply with Section 01 12 00 and Section 01 14 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply.

B. Coordination: Coordinate and cooperate with subcontractors responsible for adjacent work.

C. Sequencing: Sequence and coordinate application of insulation with related work to comply with the following.

1. Provide temporary enclosures to prevent deterioration of insulation exposed to unfavorable environmental conditions.
2. Avoid unnecessary exposure of insulation to damage during construction operations after its application.
3. Do not begin application of insulation under steel deck until clips, hangers, supports, sleeves, and other items penetrating insulation are in place.
4. Defer installing ducts, piping, and other items that would interfere with the application of insulation until insulation is completed.
5. Do not install enclosing or concealing construction until after insulation is installed, inspected, tested, and corrections are made to provide an uninterrupted thermal barrier.

1.5 SUBMITTALS- GENERAL

A. Comply with the General Conditions and Section 01 13 00, except as specified below. Where the provisions are in conflict, the more restrictive requirements apply. Do not submit items not requested.

B. Shop Drawings: Submit color-coded floor plans, supplemented by elevations, showing each type of insulation. Identify material, manufacturer, thickness, R value extent, and method of fastening where applicable.

C. Product Data: Submit manufacturer Product Data for each type of product proposed for use.

D. Samples: Submit the following.

1. Twelve-inch square Samples of each type of insulation, except foamed-in-place. For sprayed insulation, provide 12-inch square Samples on gypsum board.
2. Full size Samples of each type of impaling clips.

E. Product Test Reports: Submit test reports based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.

F. Certificates:

1. Submit applicator's certification that safing insulation is installed in accordance with applicable UL Design.
2. Submit test results in accordance with ANSI/UL 263 for fire endurance and ASTM E84 for surface burning characteristics.

G. Quality control by sealant manufacturer:

1. Submit statements on the manufacturer's letterhead dated no earlier that one year prior to submittal, for tests listed below.
2. Test data more than a year old will be acceptable provided manufacturer states that formulations or manufacturing methods have not changed sufficiently to change test results.
3. When requested, submit samples of materials to be used for the Project to the manufacturer as required for tests.
4. Test methods:

   a. ASTM C 794: Sealant compatibility and adhesion to each substrate which contact sealant.
   b. Compliance with ASTM C 920 for elastomeric sealants. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (ASTM C 719), low temperature flexibility, modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.
   c. ASTM C 1087: Sealant compatibility with backing.
   d. ASTM C 1087: Sealant compatibility and lack of adhesion to bond breaker.
   e. ASTM C 1247: Durability of sealants exposed to continuous water immersion.
   f. ASTM C 1248: Stain Testing.

5. Include identification of special substrate cleaning process, and required adhesion promoter or primer.

1.6 LEED SUBMITTALS

A. Within 30 days of contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheet" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.

B. Credit MR 4: Product data indicating percentage by weight of post-consumer and post-industrial recycled content for products having recycled content. Include a statement indicating projected costs for each product having recycled content.

C. Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers].

D. Credit IEQ 4.1: If field applied, provide manufacturer's MSDS or technical data sheet showing a printed statement of VOC content for all adhesives and sealants used on the project and demonstrating compliance with SCAQMD Rule #1168, effective July 1, 2005 and amended January 7, 2005. Provide manufacturer's product data for aerosol adhesives, including printed statement of VOC content that demonstrates compliance with the limits defined in Green Seal standard GS-36, in effect October 19, 2000.

1.7 QUALITY CONTROL

A. Regulatory Requirements: In addition to LEED requirements, comply with BAAQMD requirements referenced in Section 01 14 10.

B. Installer Qualifications:

1. Firm with minimum of 5 years' experience in installation of products, systems and assemblies specified and with approval and training of the product manufacturers.
2. Employ only skilled mechanics having experience in the work specified and having an understanding of the design principles of the thermal and air/vapor barriers which they are providing.

C. UL Qualifications: UL numbers are indicated on the Drawings for safing insulation assemblies. This does not limit the Contractor to the assemblies indicated, but substitutions must be acceptable to TJPA, AHJ, must have an approved UL number, and must fit within the space shown.

D. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.8 DELIVERY, STORAGE AND HANDLING

A. Delivery and Acceptance Requirements: Deliver materials to site in undamaged original wrappings and containers, with labels intact.

B. Storage and Handling Requirements:

1. Store insulation indoors on raised platforms and protect with waterproof covers.
2. Store materials inside buildings for 24 hours prior to installation.
3. Remove damaged, deteriorated and wet materials from the premises.

1.9 SITE CONDITIONS

A. Ambient Conditions: Maintain surface and ambient temperatures during application and curing of sealants and adhesive at temperature recommended by their manufacturer.

1.10 RECORD DOCUMENTS (AS-BUILT)

A. Maintain and submit record documents as specified in Article 3.09 of the General Conditions and in Section 01 17 20.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS

A. Credit IEQ 4.1: All VOC containing materials applied on site inside of the waterproofing barrier shall comply with LEED credits IEQ 4. Provide adhesives and sealants with VOC content and chemical component limits not exceeding the content limits defined by SCAQMD Rule #1168, July 1, 2005, amended January 1, 2005, and Green Seal GS-36, effective October 19, 2000 for aerosol adhesives as applicable.

2.2 MANUFACTURERS

A. General: One of the manufacturers named, or equal, with a record of successful performance, acceptable to the TJPA Representative, and subject to conformance to requirements of Drawings, Schedules and Specifications. See insulation types in Part 2.3 of this Section.

B. Polystyrene Board Insulation, except complying with ASTM C 578 Type II.

C. Polystyrene Board Insulation, ASTM C 578 Type VII, complying with IBC/IRC requirements for foam plastic insulation, UL Classified, 60 psi compressive strength by one of the following.

1. Dow (basis of design).
2. ACH Foam Technologies.
3. Foam-Control EPS.
4. DiversiFoam Products.
5. Insulation Corporation of America.

D. Mineral Wool Insulation by one of the following:

1. Thermafiber (basis of design).
2. ***1*** Certainteed.
3. DELETED ***1***
4. Rock Wool Manufacturing Co.

E. Polyiso Board Insulation one of the following:

1. XCI Hunter “Xci Class A” with foil facers.
2. Owens Corning Fiberglas “Foamular 250.”
3. Dow “Thermax CI.”

F. Sprayed Thermal Insulation: As specified in Section 07 21 80.

G. Foamed-in-Place Thermal Insulation, one of the following:

1. “Heatlok 0240" by Demilec Inc.
2. “Walltite®” by BASF.
1
3. Demilec. ***1***

H. Foamed-in-Place Air Seal Insulating Sealant, one of the following:

1. “Zerodraft Air Sealant Foam and Insulating Sealant” by Zerodraft.
2. “Handi-Foam®” by Fomo Products, Inc.

I. Safing Insulation by one of the following:

1. Thermafiber Inc. (basis of design).
2. ***1*** Certainteed. ***1***
3. Fibrex, Inc.
4. Johns Manville.

J. Smoke Seals, one of the following:

1. ***1*** FD 200 (Elastomeric Sprayable) by 3M or equal.
2. FB 1000 N/S Silicone Sealant by 3M or equal.
3. FB 1003 S/L Sealant by 3M or equal.

4. Fire Containment System by Thermafiber Inc.
5. Flame Safe by Grace. ***1***

2.3 INSULATION TYPES

A. INS-1: ~~Extruded~~ Expanded Polystyrene Insulation (ASTM C 578 Type 1 square edge, ½-inch thick to 1-inch thick, as indicated in drawings.) Located on exterior surface face of foundation walls, and interior side of Roof Park vertical walls and buried structures.

1. ***1*** Manufacturers: Dow Chemical Company, Owens Corning, ACH Foam Technologies. ***1***

B. INS-2: ~~Expanded~~ Extruded polystyrene insulation, ASTM C 578 Type ~~4,~~ VI (6) square edge, thickness as indicated, located on exterior side ~~vertical wall~~ horizontal surface of the train box lid and lower concourse concrete topping as shown on drawings. See Section 07 12 10 for WPM #1, and Section 07 13 26 for WPM-1A.

1. Manufacturers: Dow (Basis of Design) ACH Foam Technologies, DiversiFoam Products, Insulation Corporation of America.

C. INS-3: Semi-rigid mineral wool board insulation, ASTM C 612, Type IVA, density 3 pcf minimum, "Roxul RockBoard," thickness indicated.

1. ***1*** Manufacturers: Owens Corning Thermafiber, Rock Wool Manufacturing Co., Certainteed, Inc. ***1***

D. INS-4: Semi rigid foil-faced mineral wool board insulation, ASTM C 612, Type IVA, density 3 pcf minimum, "Roxul RockBoard," thickness indicated. Thermal insulation for application to sheet metal and steel air/water barriers, at spandrel areas of curtain wall, and elsewhere as indicated.

1. ***1*** Manufacturers: Certainteed, Inc., Ownens Corning Thermafiber, Rock Wool Manufacturing Co. ***1***

E. INS-5: Safing Insulation (Mineral-wool-type fire safing insulation) Thermafiber Inc. Thermafiber Safing. Fire safing/stopping application at slab/wall edges and penetrations.

1. ***1*** Manufacturers: Certainteed, Inc., Ownens Corning Thermafiber, Rock Wool Manufacturing Co. ***1***

F. INS-5A: Slag-wool-fiber or rock-wool fiber insulation. Fire safing/stopping application at slab/wall edges and penetrations.

1. ***1*** Manufacturers: Certainteed, Inc., Ownens Corning Thermafiber, Rock Wool Manufacturing Co. ***1***

G. INS-6: Foamed in place thermal insulation (spray-applied polyurethane foam insulation): Air seal insulating foam application to cracks, openings, junctions and penetrations.

1. ***1*** Manufacturers: Heatlok 0240 by Demilec Inc., Dow Chemical Company. ***1***

H. INS-7: Sprayed Insulation: (Spray applied glass fiber/mineral wool fiber insulation)-Thermacoustic Inc. "Thermacoustic Insulation." Applied on underside of deck, below interior space.

1. Manufacturers: As specified in Section 07 21 80.

I. INS-8: Polyisacyanurate Board Insulation, ASTM C 1289, Type 2, felt or glass-fiber mat facer on both major surfaces, Sika "Sarnatherm G." For application on roofs of roof park structures.

1. ***1*** Manufacturers: Dow Chemical Company, Sika Corporation, Genflex Roofing System. ***1***

J. INS-9: Extruded polystyrene foam board insulation, Dow Chemical Company "Styrofoam SM." For application at curtain wall (W-2 & W-9) base.

1. ***1*** Manufacturers: Dow Chemical Company, Owens Corning, Greenguard 25 PSI 40 PSI Only. ***1***

K. ***1*** INS-10A: High density, long strand ceramic or mineral fiber fire safing, Owens Corning "Quietzone Acoustical Batts." For packing and filling large or critical openings, usually behind sealant or putty.

1. Manufacturers: Owens Corning, Thermafiber, Rockwool Manufacturing Company. ***1***

L. INS-10B: Unfaced fiber glass blankets (ASTM C665, Type 1, formaldehyde-free fiber glass blankets) – Johns Manville "Sound-Shield" or Knauf "Greengaurd." For application in stud cavities and above ceilings.

1. ***1*** Manufactureres: Johns Manville, Knauf, Guardian Insulation. ***1***

M. INS-11: Acoustic Board Insulation (ASTM C1071, heavy density fiber glass board insulation, Manson "Akousti-Liner R."

1. Johns Manville, Manson.

N. INS-12: Geosynthetic fill, ASTM D6817, closed cell extruded polystyrene geofoam insulation, Specified in Division 32.

1. Manufacturers: As specified in Division 32.

O. INS-13: Structural extruded polystyrene used as fill, ASTM C 578, Type7, Dow Chemical Company "Styrofoam Highload 60" or Owens Corning "Foamular 600." For application between base slab and topping slab at non-wheel load locations such as terrazzo floors, sidewalks, plaza areas and Train Box lid.

1. Manufacturers: Dow Chemical Company, Owens Corning.

P. INS-14: Structural extruded polystyrene used as fill for wheel load applications, ASTM C 578, Type 5, Dow Chemical Company "Styrofoam Highload 100" or Owens Corning "Foamular 1000." Application between base structural slab and topping slab at locations subject to wheel loads.

1. Manufacturers: Dow Chemical Company, Owens Corning.

Q. ***1*** DELETED ***1***

R. INS-16: Foil faced polyethylene bubble insulation installed over polystyrene insulation "Styrofoam Highload 60" in radiant terrazzo floor areas. "Concrete Slab Insulation by Reflectix" 5/16" thick for radiant floors. Coordinate with terrazzo section and Mechanical Division.

2.4 PERFORMANCE AND DESIGN CRITERIA:

A. Thermal Resistance (R Value):

1. Wall and Spandrel Insulation: Minimum 16.
2. Beneath the radiant flooring heating system: Minimum 5.

2 . . .

3. **Under the topping stab at conditioned and semi-conditioned spaces in the Lower Concourse. *. . . 2***

B. Some exterior envelope elements are based on the "Rain Screen Principle". This requires construction behind cladding to act as an air/vapor barrier to prevent passage of moisture laden air and diffusion of water vapor. To ensure continuity of air/vapor barrier within construction specified herein and with adjacent barrier construction is part of responsibility of this Section.

C. Comply with these Specifications for the thermal resistance, and to the Drawings for maximum or minimum thicknesses of insulation required. Select appropriate products from list of materials, subject to compliance with the Specifications, to provide thermal value of envelope, compatibility when incorporated into finished system while ensuring substrate conditions as well as their ability to adhere components permanently, where applicable in rigid manner and maintain flexibility where required in finished work.

D. Provide insulation materials and their facings that do not support fungal growth when tested in accordance with ASTM C1338.

E. Perimeter Fire Safing Assembly: Comply with UL 2079 for a 2 hour fire rating.

2.5 INSULATION MATERIALS:

A. Semi-Rigid Mineral Fiber Board Thermal Insulation: Provide insulation with a thermal resistance value of not less than R-4 per inch thickness at a mean temperature of 75 deg F and a minimum nominal density of 4 pcf.

1. Mineral wool rigid or semi-rigid board insulation in stud walls: “FS 25” by Thermafiber, foil-faced, slag or mineral wool insulation with a density of 3 pcf, and acceptable to the AHJ.

   a. Where thickness of insulation will not provide the specified thermal resistance, use a board of higher density, such as “Safing Insulation” “Firespan” by Thermafiber.
   b. In stud walls, size insulation for a friction fit inside stud cavity.

2. Mineral wool rigid or semi-rigid board insulation in curtain walls: “Firespan” by Thermafiber slag or mineral wool insulation with a density of 8 pcf acceptable to the AHJ.
3. Deformation of board shall not exceed 10 percent when tested at 25 psf in accordance with ASTM C165.

B. Thermal Insulation for Application to Sheet Metal and Steel Air/Water Barriers at Spandrel Areas of Curtain Wall and Elsewhere as Indicated:

1. Mineral wool rigid or semi-rigid board insulation: “FireSpan” by Thermafiber, or equivalent slag or mineral wool insulation with a density of 8 pcf acceptable to AHJ.

2. In curtain walls spandrel areas and other exterior glazed assemblies, provide only spun mineral wool fibers faced with reinforced aluminum foil vapor barrier, UL rated flame spread less than 25 and smoke developed less than 5, with density of 8 pcf, 3 in thick, K-value of 0.23 and a "U" value of 0.076, “Firespan” by Thermafiber as specified above, slag or mineral wool insulation acceptable to the AHJ.
3. Deformation of board shall not exceed 10 percent when tested at 25 psf in accordance with ASTM C165.

C. Foamed-In-Place Thermal Insulation :

1. Spray-Applied Polyurethane Foam Insulation: ASTM C1029, minimum 28 kg/m³, Flame Spread ASTM E84, max 335, Air Vapor Barrier at 75 Pa, ASTM E283, max 0.00014 l/s/m²; Compressive Strength ASTM D1621, 30 psi; Water Vapor permeance when applied to CMU, one inch on substrate, ASTM E96, maximum 36.4 ng/Pa•s•m² and maximum 68 ng/Pa•s•m² applied on exterior gypsum board.
2. Air Seal Insulating Sealant, Foamed-in-Place Polyurethane Foam Insulation: One-component foam, slow rise, compressive strength: 5 psi, shear strength: 12 psi; closed cell content: <50 percent; tack-free within 10 minutes; cuttable within one hour, UL classified sealant for insulating, sealing, bonding, filling, preventing air infiltration, complying with ASTM E84 flame-spread requirements for caulks and sealants, flame spread 25, curing within 24 hours to densities between 1.0 to 2.0 pcf with an R-value of 4 to 5 per inch.

D. Fire-Safing Insulation:

1. ***1*** “Thermafiber Safing” by Thermafiber, Inc. slag or mineral wool insulation with a density of 4 pcf acceptable to AHJ for 2 hour fire rating. Products of the following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications: Johns Manville Inc., Rockwool Manufacturing Company. ***1***
2. Provide a minimum of 4-inch vertical thickness or as required by installation conditions, compressed 25 percent and held in place as specified below.
3. Friction-fitting insulation in place is not acceptable.
4. The fire safing dimensions for span from slab to exterior wall system dimension shall not exceed 8 inches.
5. Refer to Section 07 84 13 for additional specifications regarding the firestopping requirements.

2.6 ACCESSORIES:

A. Adhesive Tape for Sealing Insulation Joints:

1. ***1*** Polyethylene Adhesive Tape:

   a. “Scotch brand No. 483” by 3M
   b. Dow Weathermate ***1***

2. Foil Vapor Barrier Tape: Pressure sensitive aluminum foil tape, 2 mils thick, 3-inch wide.

   a. “Scotch Brand No. 425" by 3M.
   b. “Dead Soft Aluminum Foil Tape” by Hanson Ltd.

B. Adhesive for Materials other than Insulation Joints: As recommended by manufacturer of insulating materials and the following.

1. ***1*** Type B: For polystyrene and fiber insulation boards. Medium trowel consistency. “260-08" by Henry Co. Products of the following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications: 3M, Bostik or PPG. ***1***
2. Neoprene Adhesive: Use clip manufacturer recommended adhesive for adhering insulation clips specified below.

C. Mechanical Fasteners:

1. Insulation Clips: Zinc-coated, impaling type, perforated 2-inch square cold-rolled steel base, spindle of length to suit insulation thickness plus one inch, with speed washers by AGM Industries, Continental Studwelding Ltd., or equal;. Do not use adhesive-backed clips.
2. Strip Impalement Clips: Thermafiber “Insulation Hangers,” or one-inch wide strip fabricated from galvanized sheet in rolls with punch out insulation securement arrows.
3. Staples: Galvanized wire, 1/2-inch minimum.

D. Flexible Head of Wall and slab Smoke Seal Protection: “Smoke Seal Compound” by USG, “FireDam Spray 200 by 3M Co.,” or equal approved by safing insulation manufacturer and AHJ for this purpose.

E. Closure at Opening between Glazed Assemblies and Edge of Slab: 14-gage galvanized steel closure angle at underside of slabs if gap is larger than 6 inches from slab edge to mineral wool insulation plane or as required by AHJ.

2.7 ADDITIONAL MATERIAL REQUIREMENTS

A. Where combustible insulation or vapor barrier materials are specified, comply with applicable Code requirements by providing approved non-combustible backing and independently-supported, non-combustible insulation covering, except where these provisions are specified as work of other Sections.

B. Verify material types, compatibility, sealing and adhesive qualities for each combination of insulation, adhesive and substrate encountered in work for compatibility and suitability prior to starting installation. Submit manufacturer's laboratory reports on adhesive quality and compatibility of each of these conditions.

PART 3 - EXECUTION

3.1 EXAMINATION/PREPARATION

A. Verification of Conditions: Verify actual site dimensions and location of adjacent materials prior to commencing work.

B. Surface Preparation:

1. Verify that surfaces to receive sealants, adhesive and insulation are dry, firm, flat and free from loose material, projections, frost, grease, oil and other matter detrimental to bond of adhesive or uniform bedding of insulation.
2. Before installing insulation in stud walls, thoroughly vacuum space clean of dust and debris. Also clean spandrel cavities in the same manner.

C. Notification: Notify General Contractor in writing, with copy to the TJPA Representative, of conditions detrimental to the installation.

D. Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.

3.2 INSTALLATION

A. General:

1. Install insulation in accordance with its manufacturer's instructions, as indicated, and as follows.
2. Install thermal insulation to maintain thermal protection continuity ~~t~~of building elements and spaces.
3. Install safing insulation to prevent spread of fire thru insulated openings.
4. Fit insulation tight to electrical boxes, plumbing and heating pipes and ducts, around exterior doors and glazed assemblies, and other projections or openings in insulated assemblies and so that it will not be displaced by thermal and other movement of the supports.
5. Cut and trim board insulation neatly to fit available space. Butt joints tightly, offset vertical joints. Use only insulation free from ripped backs, damaged facing, and boards with chipped and broken edges. Maintain the integrity and continuity of insulation at interface with other materials and seal in acceptable manner. Stagger joints in row.
6. Do not cover insulation installed under this Section or other Sections until reviewed by the TJPA Representative.

B. Rigid Insulation Under Radiant Floor Heating System:

1. Where more than one layer of insulation is required to achieve the thermal resistance specified, apply adhesive in ribbons 6 inches apart to base layer of insulation in accordance with the adhesive manufacturer’s instructions so that, when in place, the boards are firmly adhered to each other. Adhere the bottom board to a clean, dry substrate in the same manner. Stagger joints between boards and between layers of boards.
2. Protect board from damage until the radiant system is installed and has been successfully tested. Prohibit non-essential foot traffic from exposed boards. See details on drawings.

C. Rigid Insulation - Elsewhere:

1. Apply adhesive to insulation in accordance with the adhesive manufacturer’s instructions so when in place, the board is firmly adhered to the substrate. Where insulation thickness exceeds 4 inches, stagger joints between boards.
2. With polystyrene insulation, apply adhesive to substrate as specified above. Where insulation thickness exceeds 12 inches, stagger joints between boards.
3. Where insulation will be impaled on clips, fix impaling clips fasteners on substrate, 2 per 24 by 8 inches board minimum. Impale insulation board on insulation clips, butting joints firmly together and secure with washers; bend back spindles against washer.
4. Leave insulation board joints unbonded over line of expansion and control joints. Bond a continuous 6-inch wide, 6 mils polyethylene strip over joint using compatible adhesive prior to application of insulation.
5. Provide flexible insulation of equivalent thickness to fit areas where application of rigid insulation is not possible to provide continuous coverage.

D. ***1*** Air Seal Insulating Foam Sealants: Coordinate the foam sealants installation with the work of Section 07 13 14. ***1***

1. Use one-component foam for cracks or openings 1/4-to 2-inch wide. Use 2-component foam sealant for gaps over 2-inch wide and for voids in hidden cavities.

2. Install foam sealants materials according to building code requirements in accordance with its manufacturer's instructions and acceptable to AHJ to achieve an air seal.
3. Apply sealant~~s~~ within recommended application temperature ranges. Consult manufacturer when foam sealants cannot be applied within specified ranges.
4. In low humidity, mist area with water to aid cure of one-component foam.
5. Do not leave foam sealants exposed to ultra-violet radiation; paint or cover promptly.
6. Avoid overfilling restricted spaces.
7. To provide continuity with air/water barrier for this Project, without limitations seal following areas:

    a. Various roof areas including roof/wall junctions, penetrations of all kinds and roof/wall junctions.
    b. Junction of roof air/ water barrier and wall air/water barrier.
    c. Ensure continuity of air and vapor seal between wall and glazed assemblies heads, jambs and sills in cavity walls. Glazed assemblies frames at walls and columns where applicable.
    d. Glazed assemblies frames and parapets in wall construction.
    e. In cavity wall construction at roof/wall junctions, window perimeters, exhaust vents and soffits. At intervals in cavity wall to achieve compartmentalization in glazed assemblies and at metal panel interface locations.
    f. Sliding door head, jambs and threshold.
    g. Where gypsum board meets roof slab and floor slab.
    h. Junctions at roof scuppers and other mechanical equipment located on roof.
    i. Basement, corridor penetrations made vertically through floors or horizontally through walls.
    j. Inspect roof perimeter for air leakage paths such as fluted deck itself, structural beam penetrations above and below top of wall, open mortar joints and conduit and pipe penetrations.
    k. Use colored smoke to identify and locate leakage.
    l. Use both one-component and 2-component foam sealants in combination to create a continuous foamed-in-place seal between wall and roof.
    m. Where deck flutes run perpendicular to wall, foam open flutes completely out to fascia.
    n. Where closed flutes occur, punch flutes and inject foam through holes. Locate holes as close to wall as possible so that plane of injected and cured foam within closed flute is level with plane of exposed foam in open flutes.
    o. Where steel deck is parallel to wall, fill void with either one or 2-component material, depending on gap size.

3.3 SPANDREL AND SAFING INSULATION

A. General:

1. Where spandrel insulation runs vertically past the floor slab edge and where the horizontal span exceeds 24 inches, provide an aluminum or galvanized steel backup stiffener within 4 inches of the fire safing location. If the spandrel insulation top edge terminates less than 8 inches above the floor slab surface and is retained, the horizontal aluminum or galvanized steel stiffeners may be omitted.
2. Secure insulation in place so that it remains at least 3/4-inch away from adjacent surface.
3. Provide a horizontal spandrel support member at the floor line to resist insulation coming in contact with metal panels due to pressure exerted by fire safing material.

B. Mechanical fasteners:

1. Retain insulation with fastening devices mechanically-attached. Adhesive only is not acceptable. Space insulation fastening devices at 12 inches o.c. and 4 inches in from perimeter edges.
2. Install insulation with the least number of pieces possible. Seal butt joints and perimeter with vapor barrier foil tape as described below.

C. Install wall insulation with edges closely butted, with joints square, straight and in alignment (not staggered), and with aluminum foil facing interior of the building, and with exposed faces flush and in the same plane without warp or twist.

1. Cut and fit insulation to closely fit intersecting or penetrating surfaces.
2. Seal joints between insulation, between insulation and intersecting or penetrating surfaces and between insulation and perimeter surfaces with 4-inch wide vapor-proof aluminum colored tape applied on the aluminum foil facing side.
3. Seal fastener punctures with aluminum colored vapor-proof mastic or use tape used for sealing joints.
4. Seal joints between insulation, safing and slab edge with smoke seal sealant specified, or provided by or approved by safing insulation manufacturer for this purpose.
5. Leave no voids in completed installation.
6. Provide insulation to meet the overall thermal resistance requirements of the exterior enclosure.

D. Install fire safing insulation between slab and thermal insulation. Insulation and fire safing shall not contact the back face of curtain wall panels when installed in its final form. Support fire safing insulation by impaling with metal "Zee" clips at 24 inches o.c. maximum.

E. Do not allow fire safing and other insulation to get damaged or wet. Replace wet or damaged insulation or fire safing.

3.4 INSULATION IN STUD WALLS

A. Install wall insulation with a friction fit to studs, and with short joints closely butted, with joints square, straight, and with aluminum foil facing interior of the building, without warp or twist.

1. Cut and fit insulation to closely fit intersecting or penetrating surfaces.
2. Seal joints between insulation, between insulation and intersecting or penetrating surfaces and between insulation and perimeter surfaces with 4-inch wide vapor-proof aluminum colored tape applied on the aluminum foil facing side.
3. Seal fastener punctures with aluminum colored vapor-proof mastic or use tape used for sealing joints.
4. Leave no voids in completed installation.
5. Provide insulation to meet the overall thermal resistance requirements of the exterior wall enclosure.

3.5 FIRE SAFING AT RATED WALL EDGE AND CURTAIN WALLS (W-2 and W-3)

A. Provide fire safing and smoke seal membrane or sealant between edge of gypsum board rated walls and inside face of W-2 aluminum mullion.

B. Design to allow for movement of curtain wall.

C. See drawings for details.

3.6 FIELD QUALITY CONTROL

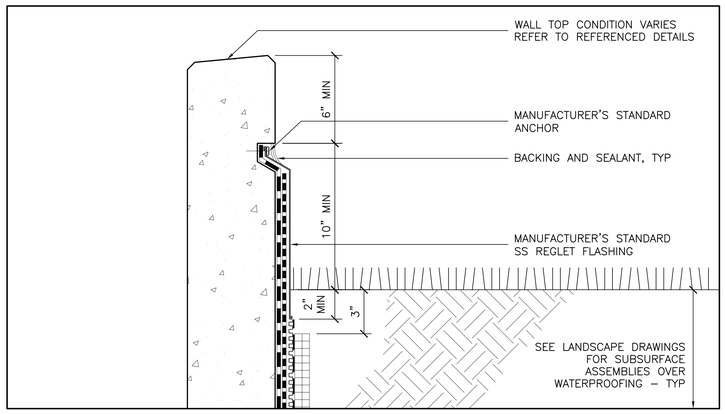
A. Install insulation so it does not interfere with the condensation removal system of the exterior wall.

B. Do not conceal insulation until the vapor barrier is inspected to insure that all joints are taped and all punctures or tears sealed.

END OF SECTION 07 21 00

SPECIFICATION ISSUE LOG

Revision	Date
0	03/31/14
1	09/12/14
2	12/16/14



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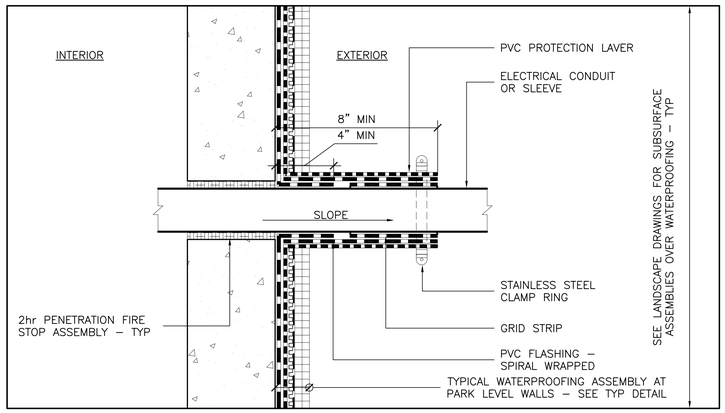

4 A1-8851 THROUGH WALL PENETRATION – TYP
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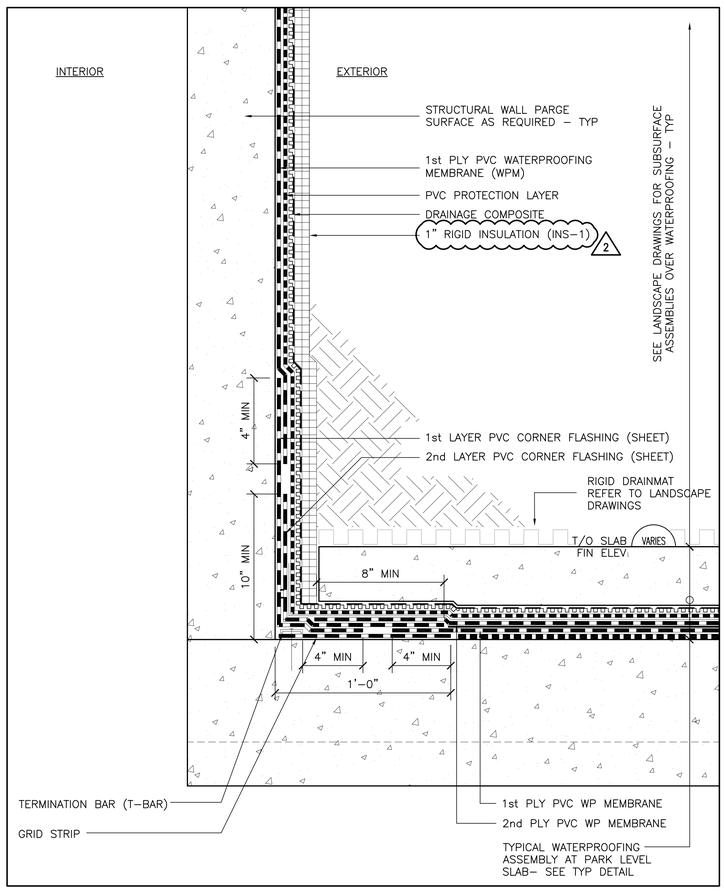

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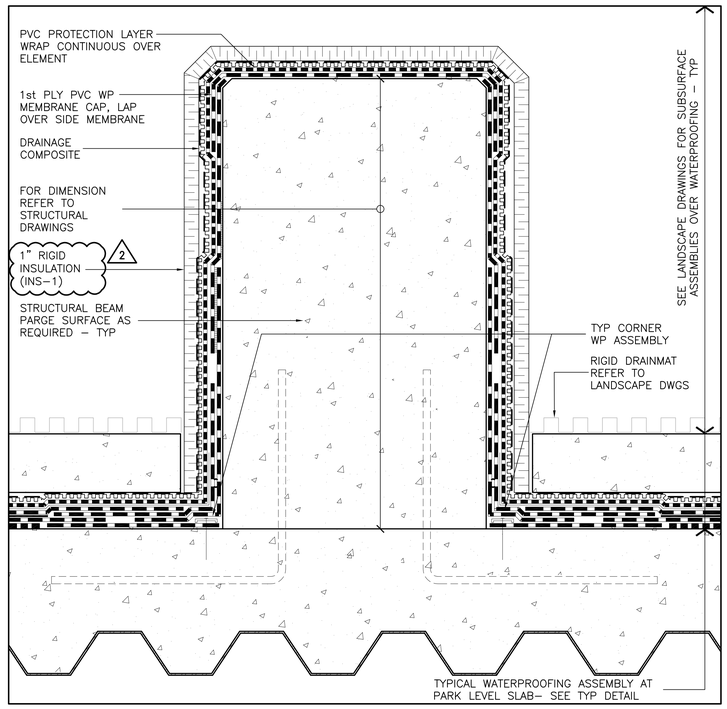

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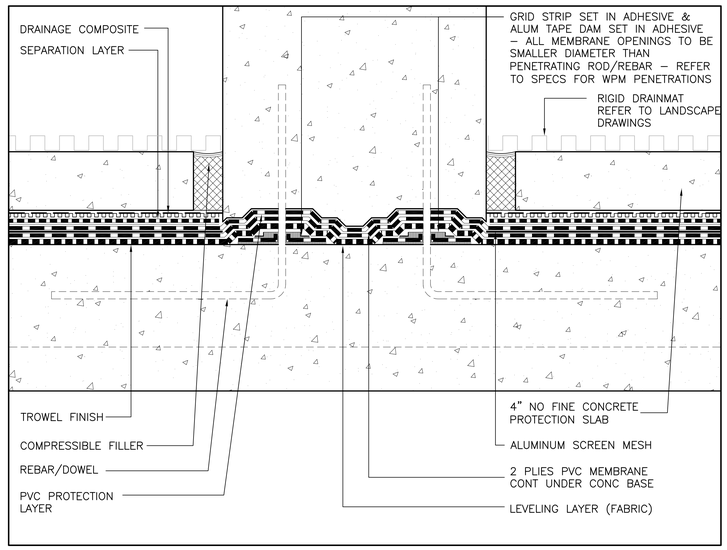

5 A1-8851 WPM-3 AT STRUCTURAL BASE – TYP
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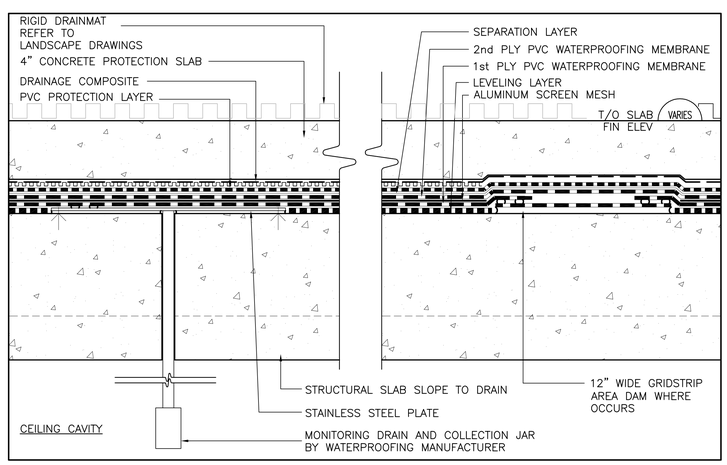

8 A1-8851 WATERPROOFING ASSEMBLY WPM-3 TYP
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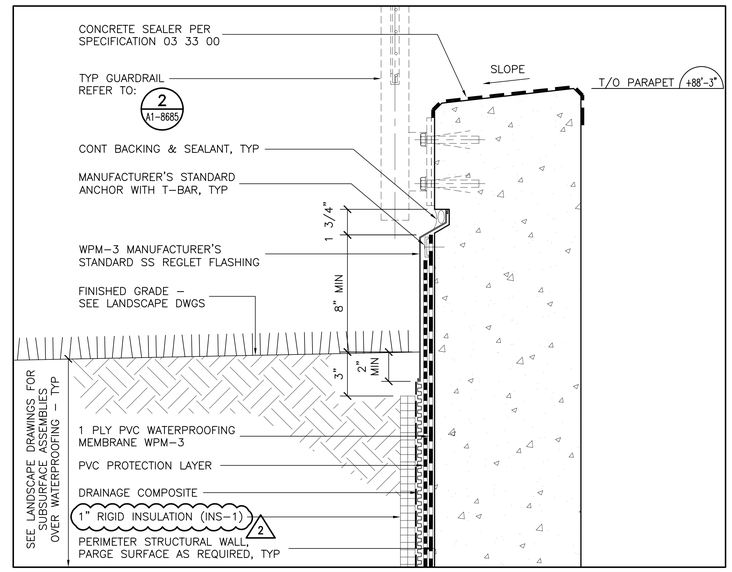

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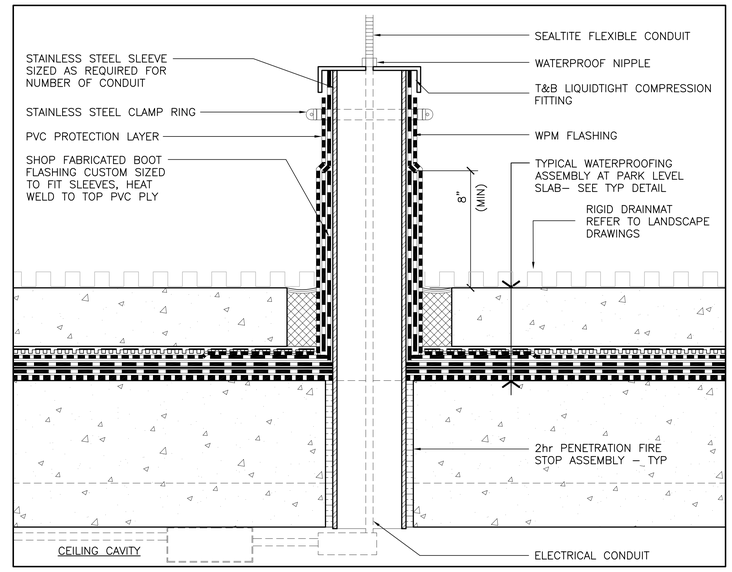

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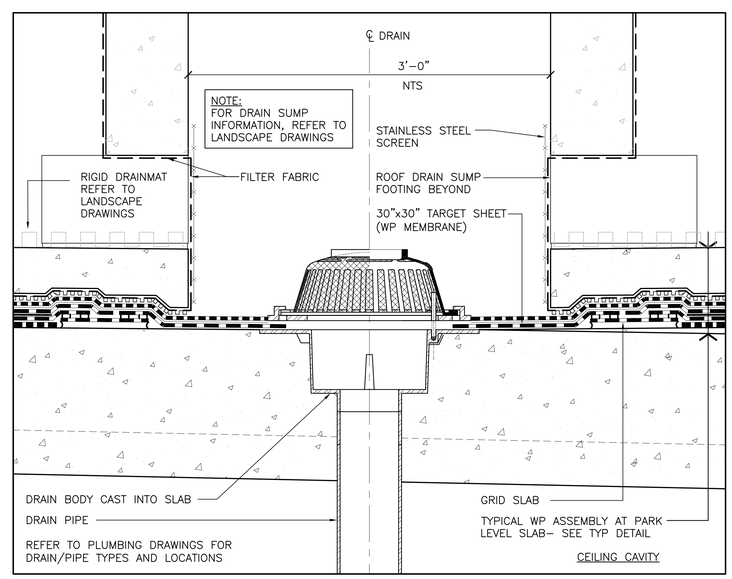

9 A1-8851 WPM-3 AT DRAIN – TYP
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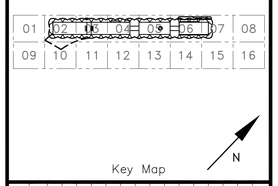
Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

Transbay Transit Center
TRANSBAY JOINT POWERS AUTHORITY

CONSULTANT:
Pelli Clarke Pelli Architects
adamson ASSOCIATES, INC



REVISIONS

NO.	DATE	DESCRIPTION	BY
1	03/31/14	ISSUED FOR CONSTRUCTION	GM
2	12/16/14	PER ASI No. 0128	GM

CONTRACT NO. 08-04-CMGC-000

PROJECT TITLE: TRANSBAY TRANSIT CENTER PROGRAM
TRANSBAY TRANSIT CENTER
SAN FRANCISCO, CA

SHEET TITLE: ROOF PARK LEVEL WATERPROOFING DETAILS

ARCHITECT/ENGINEER SEAL

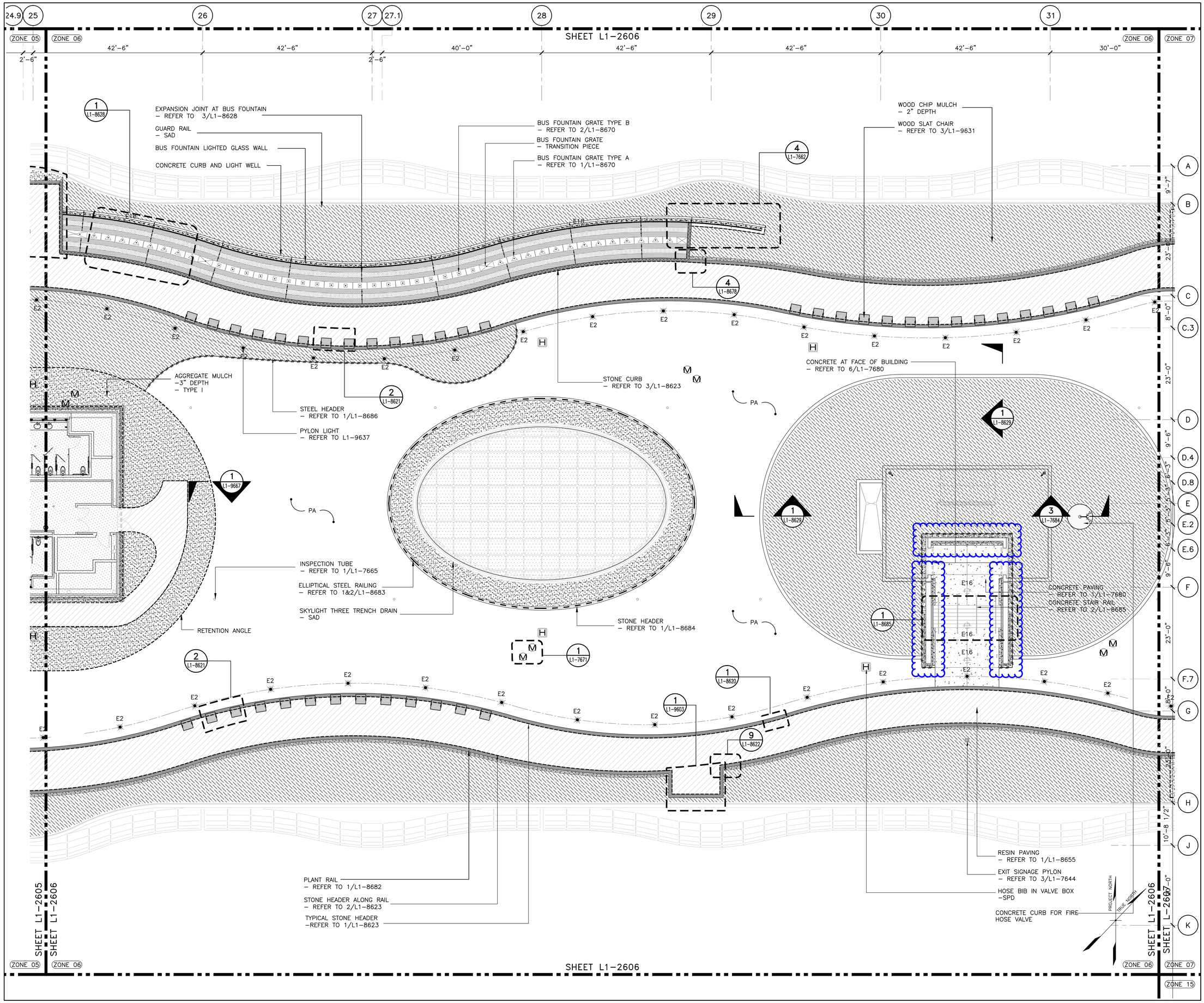
NOT FOR CONSTRUCTION

APPROVED: PRINCIPAL ARCHITECT G. METZGER
APPROVED: PROJECT MANAGER S. ROTT
APPROVED: PROJECT MANAGER E. DEL ANGEL
DESIGNED BY: E. DEL ANGEL
CHECKED BY: W.R. BRADLEY
DRAWN BY: C. KEIM
DATE: 12/16/2014
SCALE: 3" = 1'-0"
SIZE: E
FACILITY NO.: 140
REVISION: 1
SHEET NUMBER: SKA-4668
SEQUENCE NUMBER: __ of __

BASED ON SHEET A1-8851

XREFS: TJPA-TB 34x44E.dwg\ XADETPK01.dwg

May 07, 2015 - 12:01pm P:\Projects\0803-00\01 Projects\01 CAD\01 DWG\02 Sheets\A1-8851.dwg
rvplecka



1 L1-2606 PARK LEVEL ZONE 06 MATERIAL PLAN
SCALE: 1/8" = 1'-0"

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

cascade May 05, 2015 - 12:45pm ZVPCP-801\Current\ACAD\Plans\Layouts\L1-2606.dwg

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TRANSBAY JOINT POWERS AUTHORITY
PWP LANDSCAPE ARCHITECTURE
ZONE 06 MATERIAL PLAN PHASE I

SKLA-413.1

DRAWN BY: MG
CHECKED BY: CL

DATE: 05/05/15

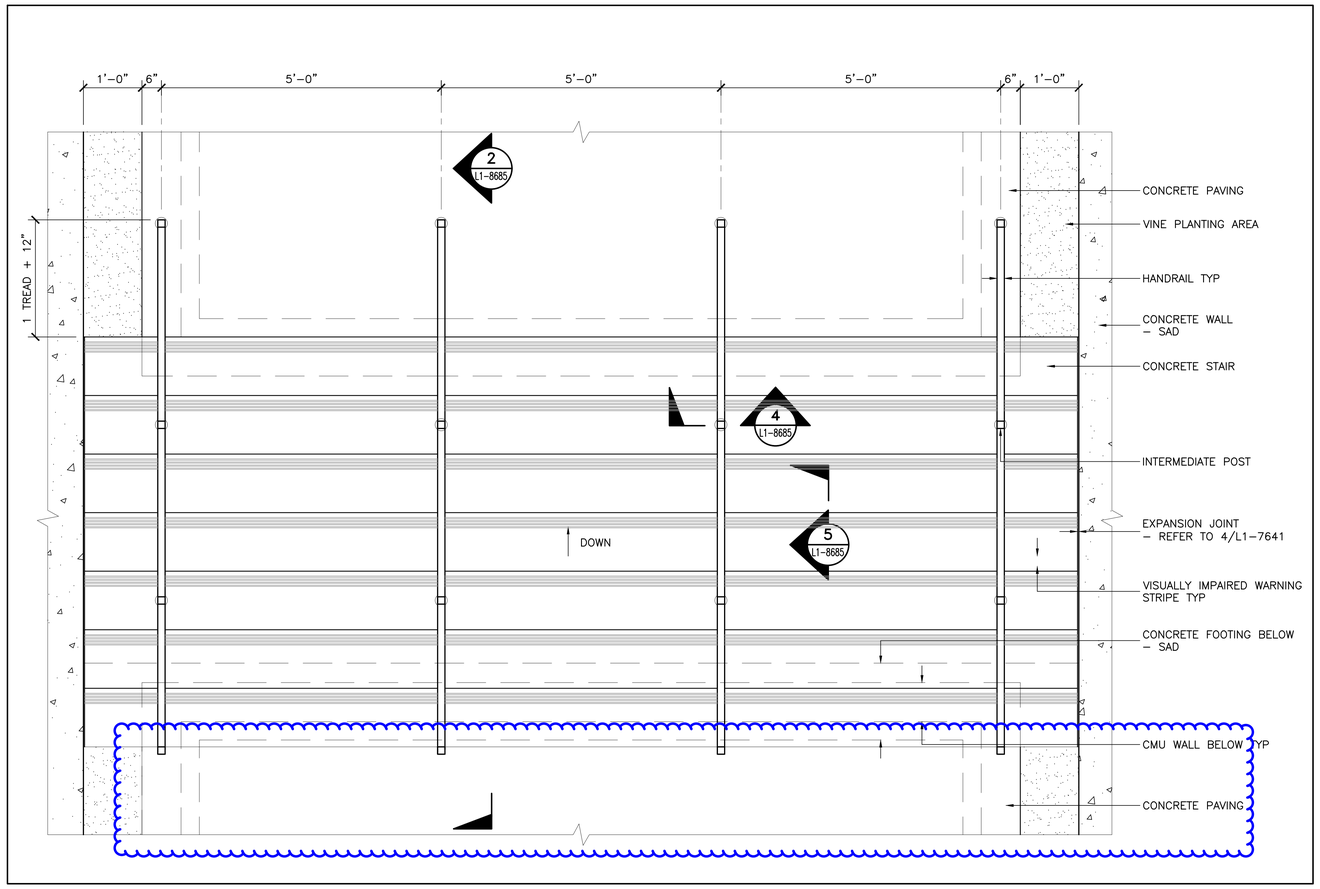
DRAWING TITLE: Response to RFI TG13.1-081

SCALE: AS SHOWN
PROJECT NO.

08 04 CMGC 000

PROJECT MANAGER: L. HUNTER
DATE: 02/27/2015
SCALE: 1/8" = 1'-0"
SIZE: E
FACILITY NO.: 140
REVISION: 4
SHEET NUMBER: L1-2606
SEQUENCE NUMBER: __ OF __

ISSUED FOR CONSTRUCTION



1 L1-8685 STAIR HANDRAIL PLAN
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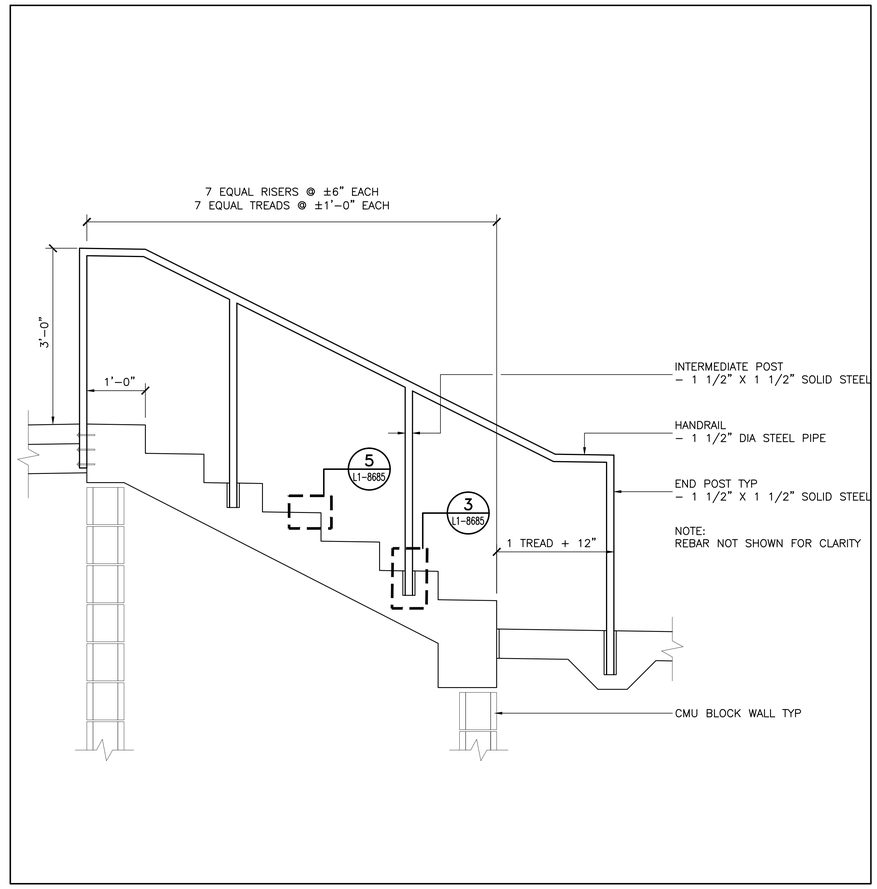

2 L1-8685 STAIR HANDRAIL SECTION
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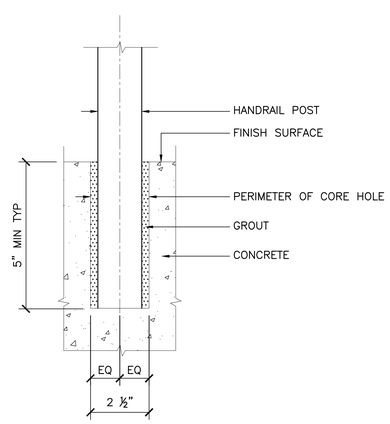

3 L1-8685 STAIR HANDRAIL POST ANCHORAGE IN CONCRETE
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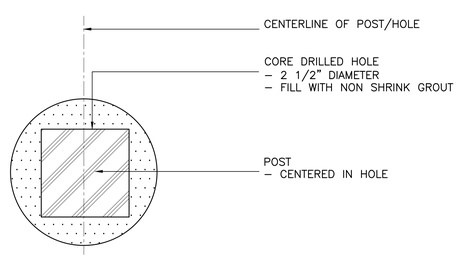

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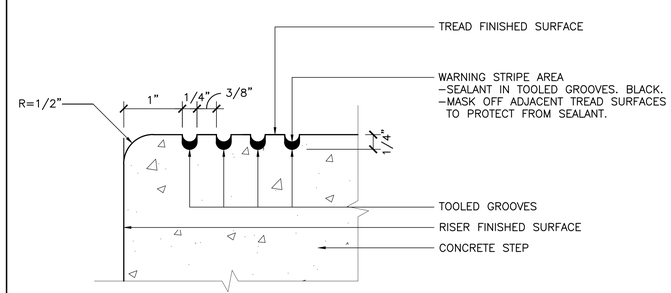


5 L1-8685 VISUALLY IMPAIRED WARNING STRIPE
SCALE: 1" = 1'

SKLA-413.2

DRAWN BY: MG
CHECKED BY: CL

05/05/15

DATE:

DRAWING TITLE: Response to RFI TG13.1-081

SCALE: AS SHOWN
PROJECT NO.

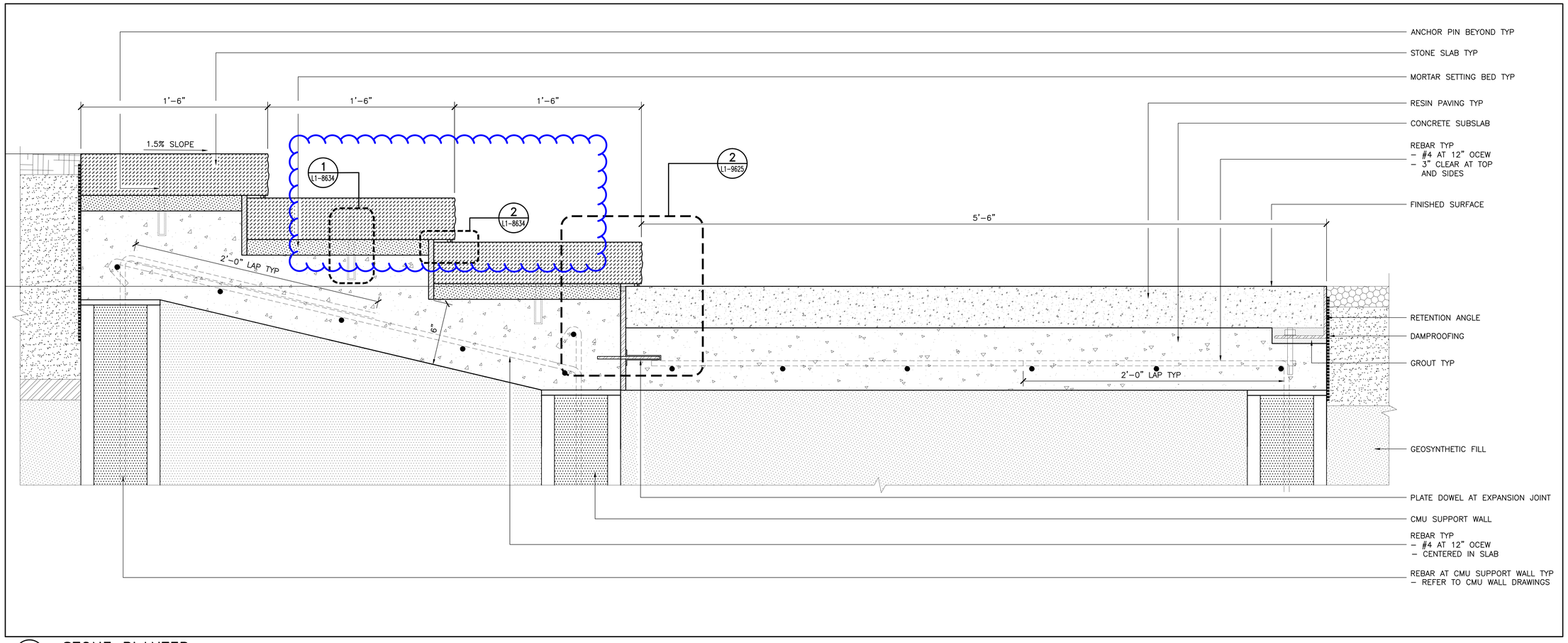
TRANSBAY TRANSIT CENTER PROGRAM
SAN FRANCISCO, CA

LANDSCAPE ARCHITECTURE
PARK LEVEL DETAILS
SITE METALS

L1-8685 __ of __

ISSUED FOR CONSTRUCTION

XREFS: TJPA-TB 34x44E.dwg



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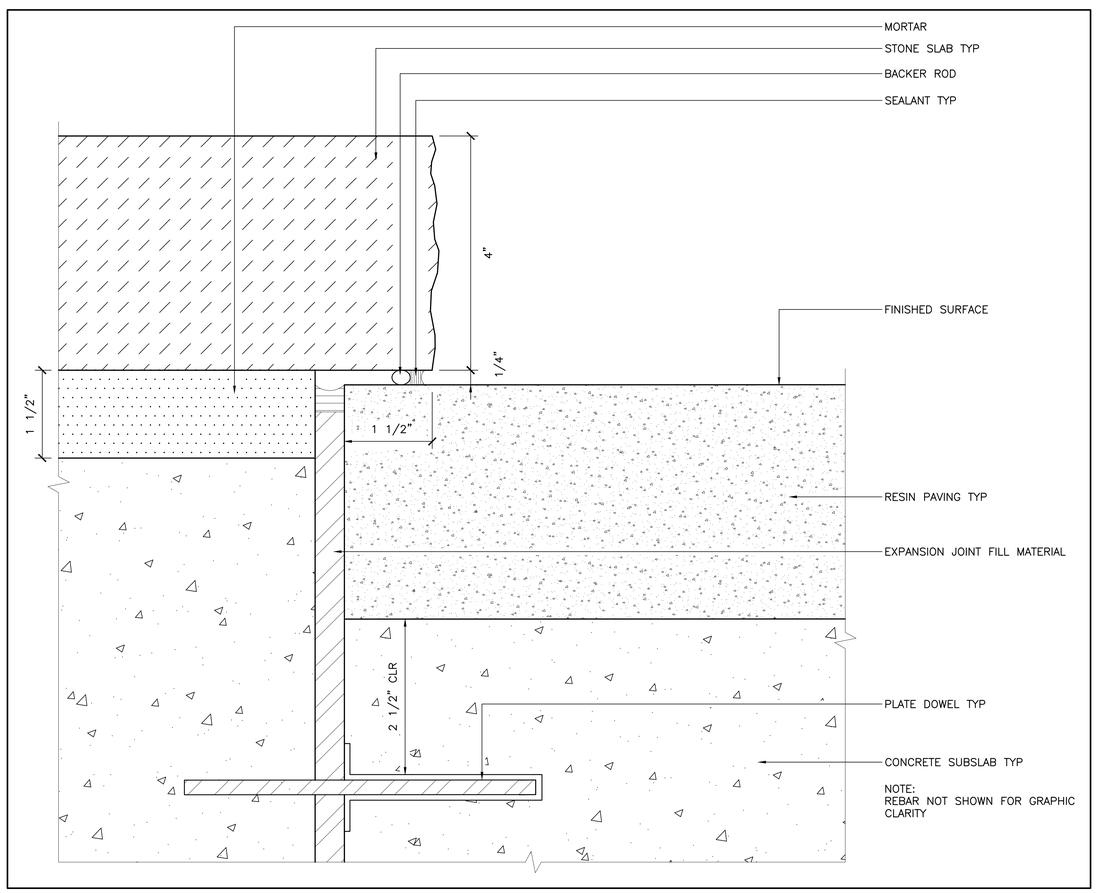

2 L1-9625 STAIR AT DECK
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Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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cascade

XREFS: TJPA-TB 34x44E.dwg

TRANSBAY JOINT POWERS AUTHORITY
TRANSBAY TRANSIT CENTER PROGRAM
PARK LEVEL DETAILS
DECKS

LANDSCAPE ARCHITECTURE
PWP

DRAWING TITLE: Response to RFI TG13.1-083
SCALE: AS SHOWN
PROJECT NO.
DATE: 05/05/15
DRAWN BY: MG
CHECKED BY: CL
SKLA-407

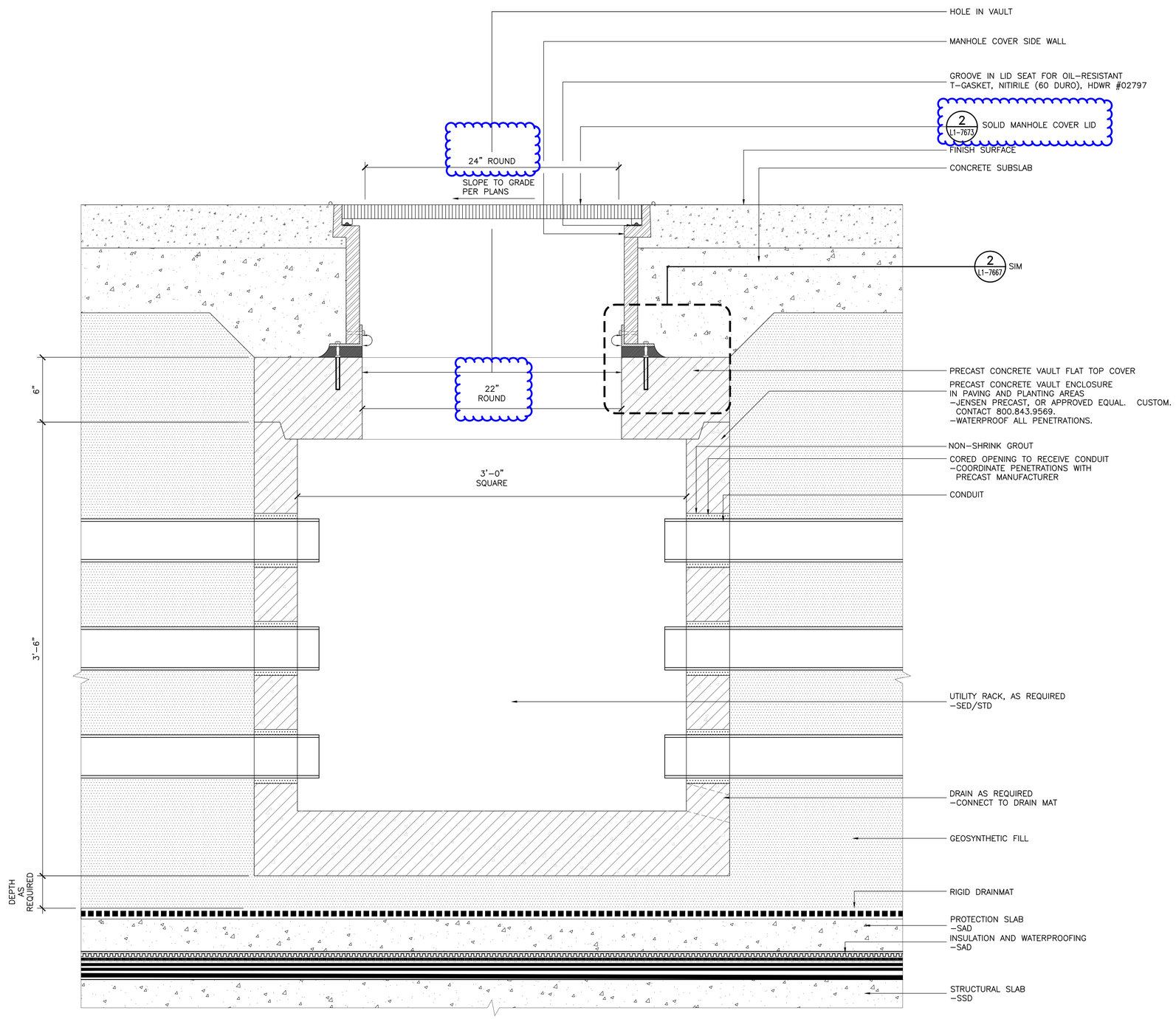
REVISIONS

PROJECT TITLE: TRANSBAY TRANSIT CENTER

Transbay Transit Center

PRINCIPAL LANDSCAPE ARCHITECT: FINDLAY
PROJECT MANAGER: LENSPAN
PROJECT MANAGER: J. SASSON
DESIGNED BY: P. WALKER
DRAWN BY: B. GILLETT
CHECKED BY: J. CANTER
SCALE: AS NOTED
DATE: 12/16/2014
SIZE: E
FACILITY NO.: 140
REVISION: 1
SHEET NUMBER: L1-9625
SEQUENCE NUMBER: __ of __

ISSUED FOR CONSTRUCTION



NOTES:
1. PLANT MATERIALS ARE NOT SHOWN FOR PURPOSE OF CLARITY
2. INSTALL R-1673-A FLOATING MANHOLE COVER AS AVAILABLE FROM NEENAY FOUNDRY COMPANY, NEENAY, WI, (920)725-7000, WWW.NFCO.COM
3. ANCHOR MANHOLE COVER ASSEMBLY TO VAULT WITH FOUR 5/8" DIA X 4" LONG HOT-DIP GALVANIZED STEEL EPOXY ANCHOR BOLTS INSTALLED THROUGH SLOTS IN ANCHOR ANGLE

1 L1-7670 UTILITY VAULT IN PAVING
SCALE: 3" = 1'

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

cascade May 06, 2015 - 3:09pm Z:\PCP\B01\Field\Field Sketches\SKLA-408 RFI TG13.1-084 Manhole Cover For Transit Center Building (140)\SKLA-408 L1-7670.dwg

XREFS: TJPA-TB 34x44E.dwg

TRANSBAY JOINT POWERS AUTHORITY
TJPA LANDSCAPE ARCHITECTURE

SKLA-408.1

DRAWN BY: MG
CHECKED BY: CL

Key Map

DATE: 05/05/15

REVISIONS
BY DF DESCRIPTION
08 04 CMGC 000
06 06 ISSUED FOR CONSTRUCTION

DRAWING TITLE: Response to RFI TG13.1-084

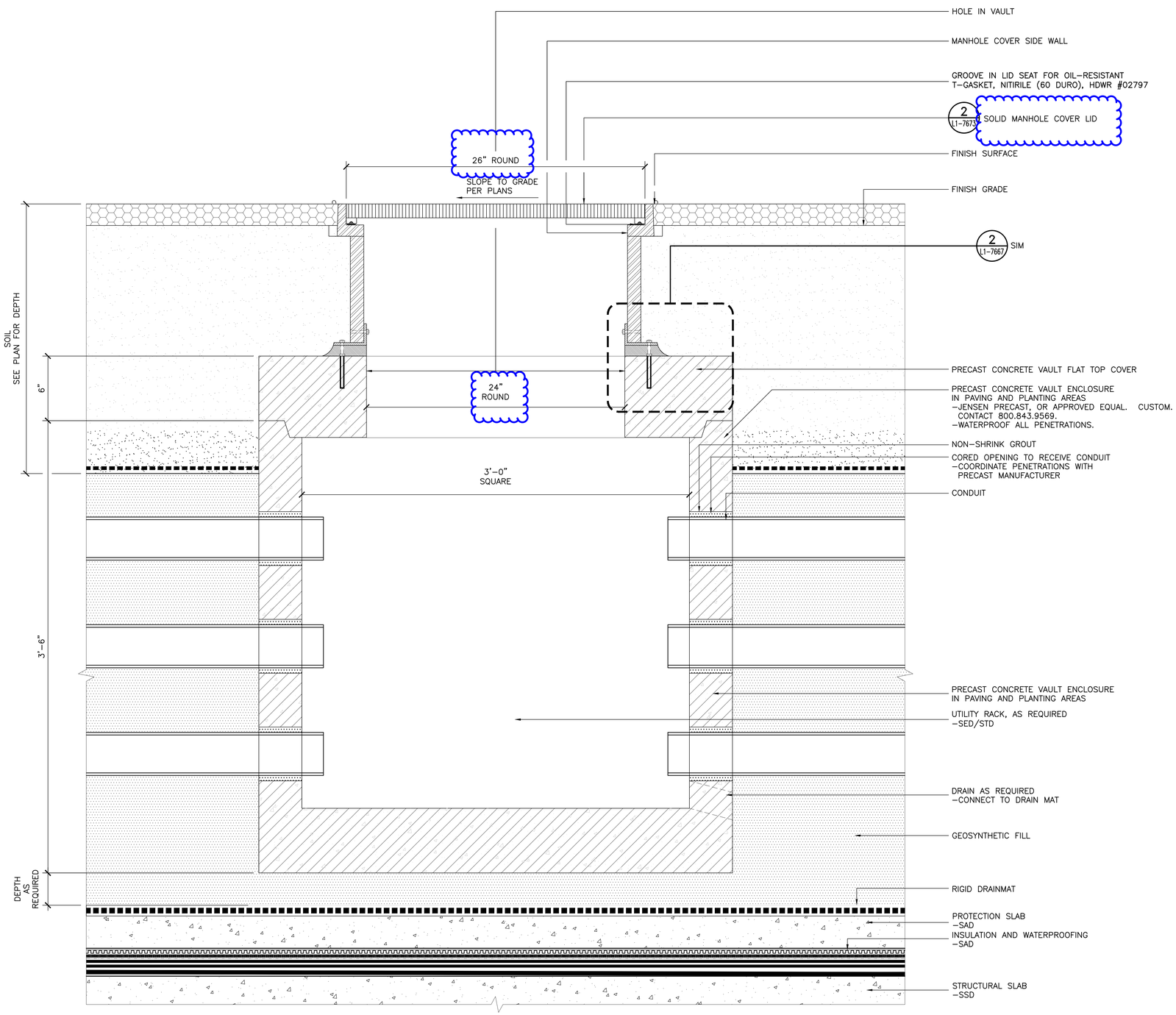
SCALE: AS SHOWN
PROJECT NO.

TRANSBAY TRANSIT CENTER PROGRAM
PWP LANDSCAPE ARCHITECTURE
PARK LEVEL DETAILS
PRECAST CONCRETE

CONTRACT NO.
PROJECT TITLE
Transbay Transit Center

ARCHITECT/ENGINEER
APPROVED
PRINCIPAL LANDSCAPE ARCHITECT FINDLAY
APPROVED
PROJECT MANAGER EENSBAN
APPROVED
PROJECT MANAGER SASSON
DESIGNED BY P. WALKER
DRAWN BY B. GILLETT
DATE 03/31/2014
SCALE AS NOTED
SIZE E
FACILITY NO. 140
REVISION 0
SHEET NUMBER L1-7670
SEQUENCE NUMBER __ OT __

ISSUED FOR CONSTRUCTION



NOTES:
1. PLANT MATERIALS ARE NOT SHOWN FOR PURPOSE OF CLARITY
2. INSTALL R-1673-A FLOATING MANHOLE COVER AS AVAILABLE FROM NEENAY FOUNDRY COMPANY, NEENAY, WI, (920)725-7000, WWW.NFCO.COM
3. ANCHOR MANHOLE COVER ASSEMBLY TO VAULT WITH FOUR 5/8" DIA X 4" LONG HOT-DIP GALVANIZED STEEL EPOXY ANCHOR BOLTS INSTALLED THROUGH SLOTS IN ANCHOR ANGLE

1 L1-7671 UTILITY VAULT IN PLANTING
SCALE: 3" = 1'

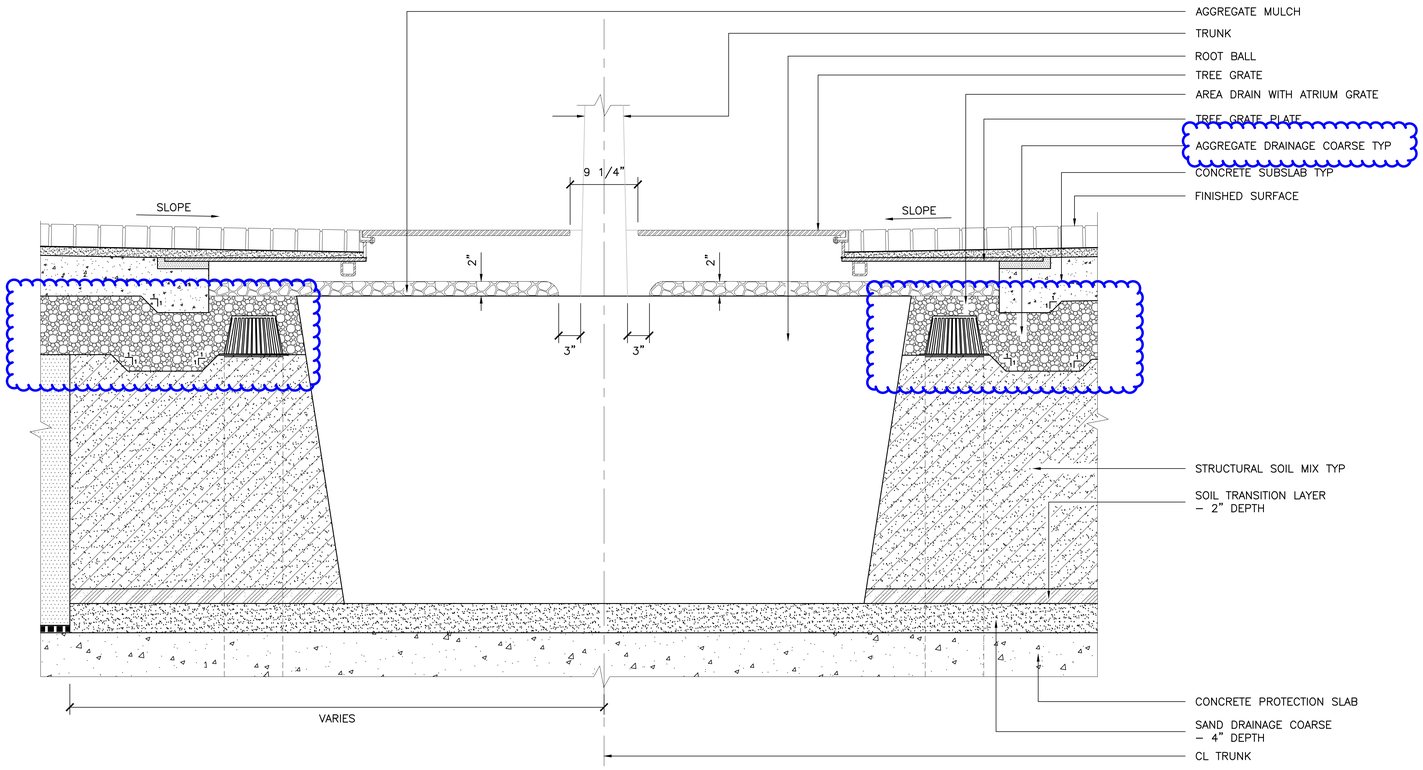
Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

May 05, 2015 - 11:09am Z:\PCP\BB\Field\Field Sketches\SKLA-408 RFI TG13.1-084 Manhole Cover For Transit Center Building (140)\SKLA-408 L1-7671.dwg

XREFS: TJPA-TB 34x44E.dwg

TRANSBAY JOINT POWERS AUTHORITY
PWP LANDSCAPE ARCHITECTURE
SKLA-408.2
DRAWN BY: MG
CHECKED BY: CL
Key Map
DATE: 05/05/15
DRAWING TITLE: Response to RFI TG13.1-084
SCALE: AS SHOWN
PROJECT NO.
TRANSBAY TRANSIT CENTER PROGRAM
PARK LEVEL DETAILS
PRECAST CONCRETE
08-04-CMGC-000
LANDSCAPE ARCHITECTURE
Transbay Transit Center
PRINCIPAL LANDSCAPE ARCHITECT: FINDLAY
PROJECT MANAGER: GREENSPAN
PROJECT ARCHITECT: SASSON
DRAWN BY: J. WALKER
CHECKED BY: J. CANTER
APPROVED: J. HUNTER
03/31/2014
AS NOTED
SIZE E
FACILITY NO. 140
REVISION 0
DRAWING NUMBER
SEQUENCE NUMBER
L1-7671
__ of __

ISSUED FOR CONSTRUCTION



1
L1-9668

TREE GRATE AT PLAZA

SCALE: 1 1/2" = 1'

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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XREFS: TJPA-TB 34x44E.dwg

TRANSBAY JOINT POWERS AUTHORITY

SKLA-409

DRAWN BY: MG
CHECKED BY: CL

DATE: 05/05/15

Key Map

REVISIONS

DESCRIPTION
FOR CONSTRUCTION

DRAWING TITLE: Response to RFI TG13.1-085

SCALE: AS SHOWN
PROJECT NO.

08 04 CMCC 000

TRANSBAY TRANSIT CENTER PROGRAM
SAN FRANCISCO, CA

LANDSCAPE ARCHITECTURE
PARK LEVEL DETAILS
SOIL AND PLANTING

PWP

Transbay Transit Center

PRINCIPAL LANDSCAPE ARCHITECT: FINDLAY
PROJECT MANAGER: EENSPAN
PROJECT MANAGER: SASSON
DRAWN BY: WALKER
CHECKED BY: CANTER
SCALE: PARK
DATE: 03/31/2014
SCALE: AS NOTED
SIZE: E
FACILITY NO.: 140
REVISION: 0
SHEET NUMBER: L1-9668
SEQUENCE NUMBER: __ of __

ISSUED FOR CONSTRUCTION

LEGEND

GENERAL PARK LEVEL SUBSLAB PLANS

- CONCRETE SUBSLAB
- CONCRETE BASIN
- BUS FOUNTAIN PRECAST CONCRETE SUBSLAB AND BASIN
- CONCRETE WALK
- CMU SUPPORT WALLS
- LIGHT PYLON FOOTING – SSD
- MAST LIGHT FOOTING – SSD
- CRACK CONTROL JOINT
- EXPANSION JOINT – DOWELED
- EXPANSION JOINT – PLATE DOWELED
- EXPANSION JOINT – NON–DOWELED
- CONCRETE BASIN CONSTRUCTION JOINT – WATERSTOP
- ROOF DRAIN ENCLOSURE – PRECAST CONCRETE
- SIGNAGE FOOTING – SSD
- ELLIPTICAL RAIL FOOTING
- BOULDER FOOTING – SSD
- DRINKING FOUNTAIN FOOTING
- PLAY STRUCTURE FOOTING – SSD
- BUS FOUNTAIN PRECAST CONCRETE MODULE – SEE SHEETS L1–7655 TO L1–7658 FOR ENLARGEMENTS
  - BASIN CONFIGURATION
  - MODULE NUMBER
- DEPRESSED SLAB FOR RETENTION ANGLE

LEGEND

GENERAL PARK LEVEL GRADING AND DRAINAGE PLANS

- FS 86.50 — PROPOSED SPOT ELEVATION
- 87.00 — PROPOSED CONTOUR
- 1.5% — SLOPE DIRECTION AND PERCENTAGE
- FLUSH
- GRADE BREAK
- DRAIN CENTERLINE
- DRAIN HIGH POINT
- ROOF DRAIN ENCLOSURE
- AREA DRAIN IN PAVING – 6" DIA – 4/L1–9651
- AREA DRAIN IN PLANTING – 8" DIA – 3/L1–9650
- AREA DRAIN IN PLANTING – 4" DIA – 4/L1–9650
- AREA DRAIN IN SUBSLAB – 6" DIA – 4/L1–9651
- DRAIN BOX WITH AREA DRAIN GRATE – 22" X 22" – 1/L1–9652
- CATCHBASIN WITH AREA DRAIN GRATE – 9" DIA – 1/L1–9650
- CATCHBASIN WITH SOLID LID – BURIED LID – 2/L1–9650
- DRAIN BY ARCHITECT – SAD
- DUEL CLEANOUT – BURIED LID
- DUEL CLEANOUT – DRAIN GRATE LID
- CLEANOUT – BURIED LID – 5/L1–9650
- PERFORATED PIPE – 4" DIAMETER
- SOLID PIPE – 4" DIAMETER
- Y FITTING
- RIDGELINE

LEGEND

GENERAL PARK LEVEL GEOSYNTHETIC FILL PLANS

- FS 86.50 — PROPOSED SPOT ELEVATION
- 87.00 — PROPOSED 1 FOOT CONTOUR
- 87.50 — PROPOSED 0.5 FOOT CONTOUR
- 1.5% — SLOPE DIRECTION AND PERCENTAGE
- GRADE BREAK
- HIGH POINT
- ROOF DRAIN ENCLOSURE
- GEOSYNTHETIC FILL
- GEOSYNTHETIC FILL SLOPE TRANSITION ZONE

LEGEND

GENERAL PARK LEVEL SOILS PLANS

- HIGH USE TURF SOIL – 1'–6" AVG. DEPTH
- 1'–6" MIN. DEPTH SOIL PROFILE – REINFORCED SOIL FOR MOUNDS
- 1'–6" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- 1'–6" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- 2'–0" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- WETLAND PLANTING MEDIUM – 2'–0" AVG. DEPTH SOIL PROFILE
- 2'–4" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- 2'–4" AVG. DEPTH SOIL PROFILE – PLANTING BED DESERT GARDEN MIX SOIL
- 2'–10" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- 2'–10" AVG. DEPTH SOIL PROFILE – PLANTING BED DESERT GARDEN MIX SOIL
- 2'–10" AVG. DEPTH STRUCTURAL SOIL PROFILE
- 4'–0" AVG. DEPTH SOIL PROFILE – PLANTING BED MIX SOIL AND HORTICULTURAL SUBSOIL
- 4'–0" AVG. DEPTH STRUCTURAL SOIL PROFILE

SKLA-410.1

Response to RFI TG13.1-086

DRAWN BY: MG
CHECKED BY: CL

DATE: 05/05/15

SCALE: AS SHOWN
PROJECT NO.

DRAWING TITLE: LEGEND

LANDSCAPE ARCHITECTURE

08–04–CMGC–000

TRANSBAY TRANSIT CENTER PROGRAM
SAN FRANCISCO, CA

PWP

Transbay Transit Center

APPROVED:
PRINCIPAL ARCHITECT/ENGINEER: FINDLAY
APPROVED:
PROJECT MANAGER: REENSPAN
APPROVED:
PROJECT MANAGER: SASSON
DESIGNED BY: D. WALKER
DRAWN BY: J. CANTER
CHECKED BY: B. GILLETT
DATE: 12/16/2014
SCALE: N/A
SIZE: E
FACILITY NO.: 140
REVISION:
SHEET NUMBER: L–0005
SEQUENCE NUMBER: 01

REVISIONS

1	12/16/14	PER ASI NO. 0128	DF

DESCRIPTION: ISSUED FOR CONSTRUCTION

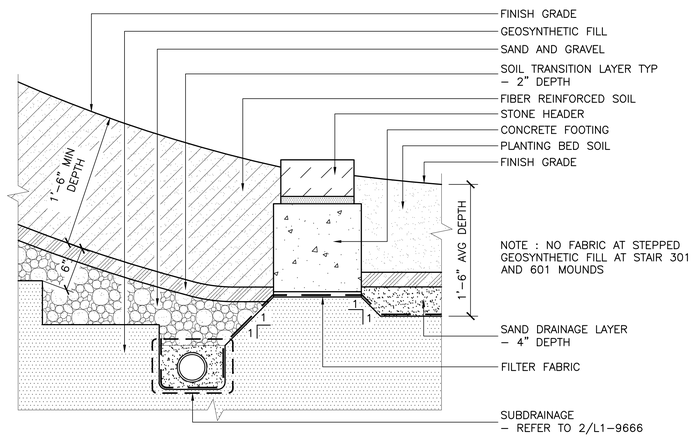
Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

May 05, 2015 – 11:53am Z:\PCP\801\Field\Field Sketches\SKLA-410 RFI TG13.1-086 Fiber Reinforced Soil For Transit Center Building (140)\SKLA-410 L-0005.dwg

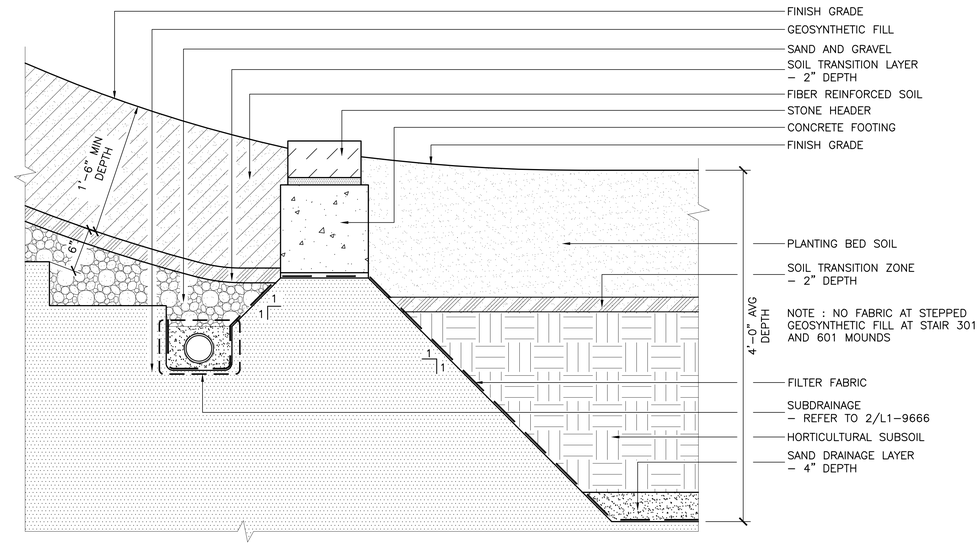
cascade

XREFS: TJPA–TB FOLLOW 34x44E.dwg

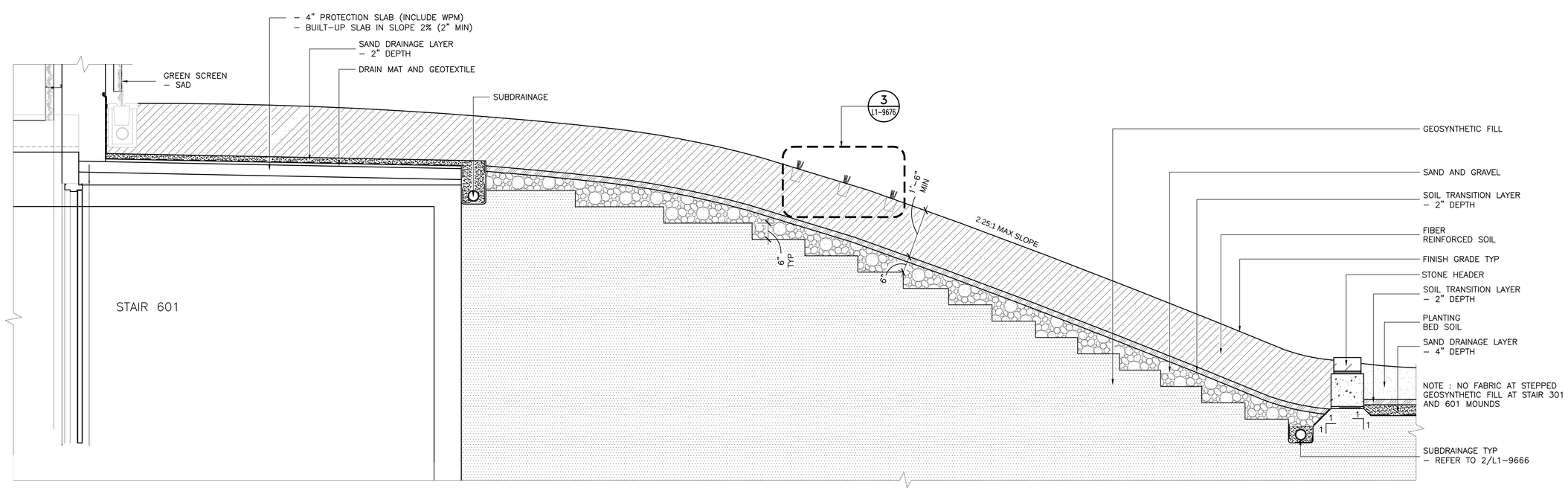
ISSUED FOR CONSTRUCTION



1 L1-9675 TRANSITION BETWEEN 1'-6" MIN. AND 1'-6" DEPTH SOIL
SCALE: 1-1/2" = 1'



2 L1-9675 TRANSITION BETWEEN 1'-6" MIN. AND 4'-0" DEPTH SOIL
SCALE: 1-1/2" = 1'



3 L1-9675 1'-6" MIN. DEPTH FIBER REINFORCED SOIL
SCALE: 3/4" = 1'

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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XREFS: TJPA-TB 34x44E.dwg

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TRANSBAY JOINT POWERS AUTHORITY
PWP LANDSCAPE ARCHITECTURE

DRAWING TITLE: Response to RFI TG13.1-086
SKLA-410.2
DRAWN BY: MG
CHECKED BY: CL
DATE: 05/05/15
SCALE: AS SHOWN
PROJECT NO.

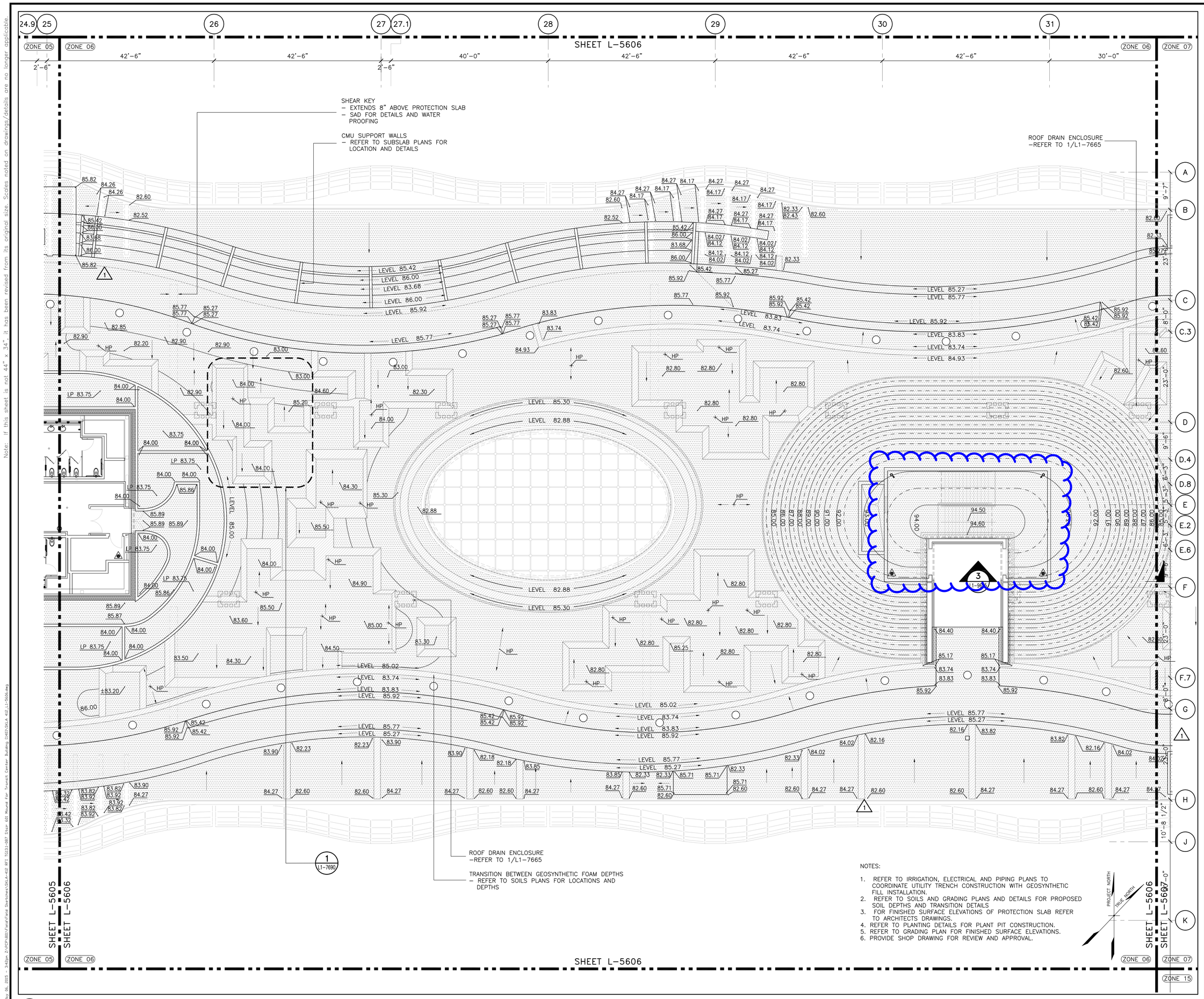
REVISIONS

08-04-CMGC-000

TRANSBAY TRANSIT CENTER PROGRAM
PARK LEVEL DETAILS
SOIL AND PLANTING

LANDSCAPE ARCHITECTURE

PRINCIPAL LANDSCAPE ARCHITECT: FINDLAY
PROJECT MANAGER: ENSPAN
PROJECT MANAGER: SASSON
DESIGNED BY: P. WALKER
DRAWN BY: J. CANTER
CHECKED BY: S. PARK 03/31/2014
SCALE: AS NOTED
SIZE: E
FACILITY NO.: 140
REVISION: 0
SHEET NUMBER: L1-9675
SEQUENCE NUMBER: __ of __



NOTES:

1. REFER TO IRRIGATION, ELECTRICAL AND PIPING PLANS TO COORDINATE UTILITY TRENCH CONSTRUCTION WITH GEOSYNTHETIC FILL INSTALLATION.
2. REFER TO SOILS AND GRADING PLANS AND DETAILS FOR PROPOSED SOIL DEPTHS AND TRANSITION DETAILS
3. FOR FINISHED SURFACE ELEVATIONS OF PROTECTION SLAB REFER TO ARCHITECTS DRAWINGS.
4. REFER TO PLANTING DETAILS FOR PLANT PIT CONSTRUCTION.
5. REFER TO GRADING PLAN FOR FINISHED SURFACE ELEVATIONS.
6. PROVIDE SHOP DRAWING FOR REVIEW AND APPROVAL.

1 / L1-5606 PARK LEVEL ZONE 06 LIGHTWEIGHT FILL PLAN
SCALE: 1/8" = 1'-0"

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XREFS: TJPA-TB 34x44E.dwg\ XAGRID-96.dwg\ XLZONES.dwg\ XAFLRPKPH1.dwg\ XLFOAMPKPH1.dwg\ XLSUMPPKPH1.dwg\ XLUTBPKPH1.dwg

TRANSBAY JOINT POWERS AUTHORITY

PWP LANDSCAPE ARCHITECTURE

SKLA-412

DRAWN BY: SJP
CHECKED BY: CL

DATE: 05/06/15

DRAWING TITLE: Response to RFI TG13.1-087

SCALE: AS SHOWN
PROJECT NO.

REVISIONS

TRANSBAY TRANSIT CENTER PROGRAM
CENTRAL PLAZA
SAN FRANCISCO, CA
ZONE 06 LIGHTWEIGHT FILL PLAN
PHASE I

CONTRACT NO.

PROJECT TITLE

ARCH / ENGINEER

Transbay Transit Center

APPR: PRINCIPAL LANDSCAPE ARCHITECT FINDLAY
APPR: PROJECT MANAGER ENSPAN
APPR: PROJECT MANAGER SASSON
DESIG: P. WALKER
DRAWN: S. PARK
SCALE: 1/8" = 1'-0"
SHEET NUMBER L1-5606
CONTRACT NUMBER E 140
REVISION 1
SEQUENCE NUMBER
of

ISSUED FOR CONSTRUCTION

SECTION 32 15 00 – AGGREGATE SURFACING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aggregate Mulch in Maintenance Strips.
2. Aggregate Mulch in Bamboo Grove.
3. Aggregate Mulch in Graywater Garden.

1 . . .

4. **Aggregate Mulch at Tree Grates.** ***. . . 1***

1.2 REFERENCES

A. ASTM — ASTM International: D 1557 — Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

1.3 DEFINITIONS

A. Acceptance, Acceptable, or Accepted: Acceptance by TJPA Representative in writing.

B. Finished Surface: The required final grade elevations of aggregate surfaces indicated on the Drawings.

C. Excessive Compaction: Planting Medium compaction greater than specified in Section 32 91 00, part 3.2.C-2 .

1.4 SUBMITTALS

A. LEED Submittals:

1. Within 30 days of Contract award, assemble and submit all LEED material information on the "LEED Material Tracking Spreadsheets" and forms provided in the Project Manual, together with all supplemental documentation as required by LEED.
2. Credit MR 4: Product data indicating percentage by weight of post-consumer and post-industrial recycled content for products having recycled content. Include a statement indicating projected costs for each product having recycled content.
3. Credit MR 5: Product data indicating location of extraction and processing and location of manufacture. Include a statement indicating projected costs for each product being extracted, processed, and manufactured within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers].
~~4.~~ Credit SS 7.2: Provide product data for hardscape materials indicating Solar Reflectance Index (SRI) as calculated according to ASTM E 1980.

B. Samples:

1. Aggregate Mulch in Maintenance Strips and Greywater garden—1-pound plastic bag.
2. Aggregate Mulch in Bamboo Grove—1-pound plastic bag.

C. Product Data: Weed Barrier.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Meet requirements of applicable laws, codes, and regulations required by authorities having jurisdiction over such Work.

PART 2 - PRODUCTS

2.1 LEED REQUIREMENTS:

A. Credit MR 5: Provide mulch materials with minimum 100 percent final products and having raw materials being sourced within a straight-line 500 mile (800 kilometer) total travel distance of the project site using a weighted average determined through the following formula: (Distance by rail/3) + (Distance by inland waterway/2) + (Distance by sea/15) + (Distance by all other means) = 500 miles [800 kilometers].

2.2 ACCEPTABLE MANUFACTURERS AND SUPPLIERS

A. Aggregate Mulch:

1. Lyngso Garden Materials, Inc., Redwood City, CA; (650) 364-1730; www.lyngsogarden.com.
2. ***1 . . .*****American Soil, Richmond, CA; (510) 292-3000.**
3. ***. . . 1*** Or equal.

B. ***1 . . .***Weed Barrier **at Aggregate Mulch on Geosynthetic Fill** ~~Maintenance Strips~~:***. . . 1***

1. Fiberweb, Old Hickory, TN; (800) 284-2780.
2. ***1 . . .*****Polymer Group; (800) 541-5519.**
3. ***. . . 1*** Or equal.

2.3 MATERIALS

A. Aggregate Mulch Type '~~A'~~ I' in Bamboo Grove: 1/4-inch size, clean and free of fines, California Gold.

B. ***1 . . .***Aggregate Mulch Type '~~B'~~ II' in Maintenance Strips**, at Tree Wells,** and Greywater Garden: 3/8-inch crushed stone, washed, black basalt

C. Weed Barrier at ~~Maintenance Strips~~ **aggregate mulch on geosynthetic fill**:.***. . . 1***

1. Bio Barrier II.
2. Or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of General Conditions: Examine site and verify that conditions are suitable to receive Work and that no defects or errors are present which would cause defective installation of products or cause latent defects in workmanship and function.

B. Headers: Verify that headers have been installed on solid ground at the correct elevations and horizontal alignment.

C. Unsuitable conditions: Before proceeding with Work, notify the TJPA's Representative in writing of unsuitable conditions and conflicts.

3.2 PREPARATION

A. Protection of Existing Conditions:

1. Use every possible precaution to prevent damage to existing conditions to remain such as structures, utilities, irrigation systems, plant materials and paving on or adjacent to the site of the Work.
2. Provide barricades, fences or other barriers as necessary to protect existing conditions to remain from damage during construction.
3. Use every possible precaution to prevent excessive compaction of planting area soil within or adjacent to the areas of Work.
4. Do not store materials or equipment, permit burning, or operate or park equipment under the branches of existing plants to remain.
5. Submit written notification of conditions damaged during construction to the TJPA's Representative immediately.

3.3 SURVEY REQUIREMENTS

A. Lines and Levels: Establish lines and levels, locate and lay out by instrumentation and similar appropriate means for aggregate paving finish grades.

B. Staking: Provide a sufficient quantity of grade stakes as required to provide aggregate material with smooth finish surfaces and positive drainage.

3.4 INSTALLATION OF AGGREGATE MULCH

A. Aggregate:

1. Place aggregate mulch material over soil surface without damaging trees and adjacent materials.
2. Screed mulch surface smooth.

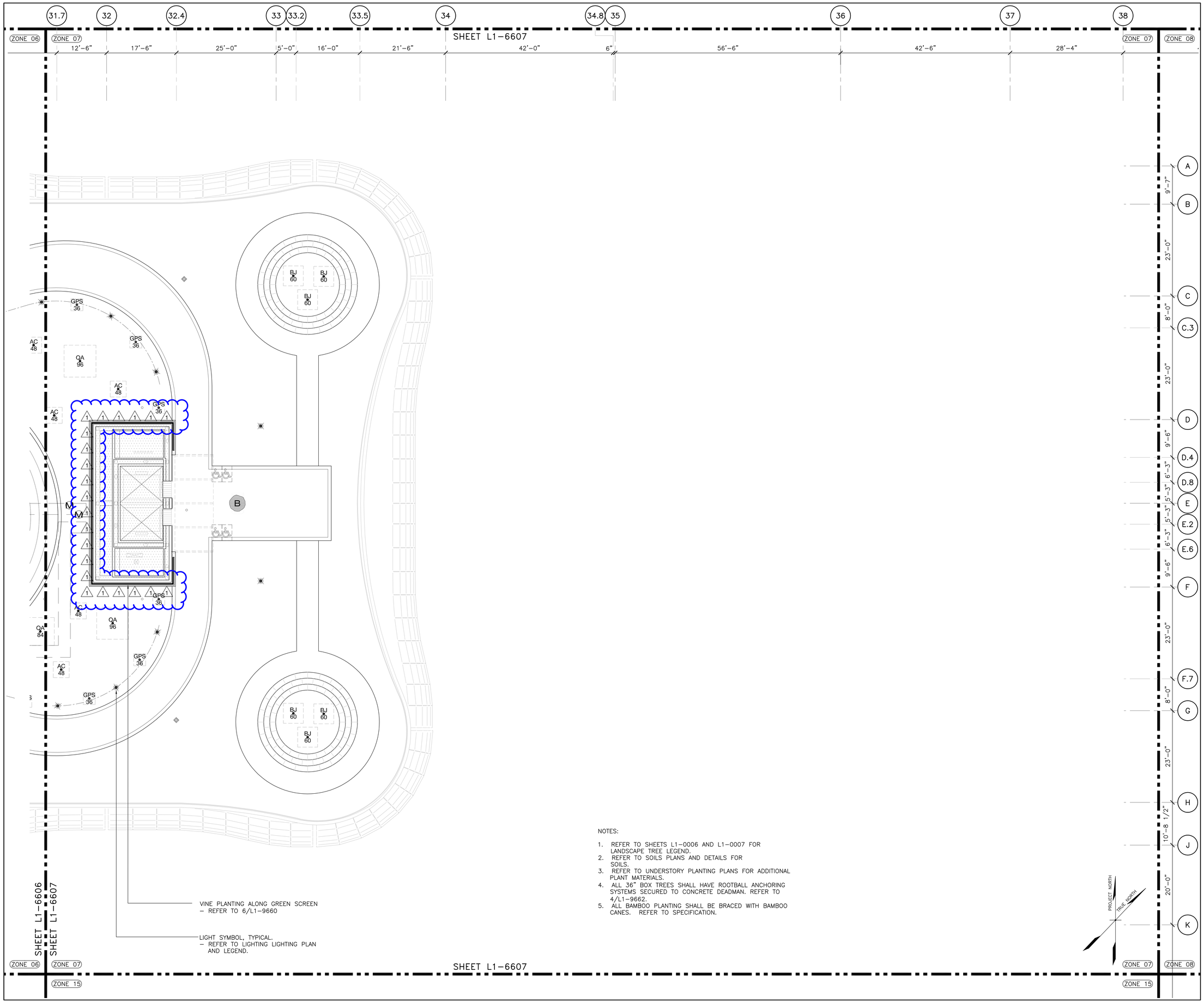
B. Compaction: Lightly compact aggregate to 80 percent.

C. Settlement: Prior to Final Inspection and during the last month of the maintenance period, add aggregate mulch to settled areas to bring surface of settled mulch areas back to finished surface elevation.

END OF SECTION 32 15 00

SPECIFICATION ISSUE LOG

Revision	Date
0	03/31/14
1	02/27/15



NOTES:

1. REFER TO SHEETS L1-0006 AND L1-0007 FOR LANDSCAPE TREE LEGEND.
2. REFER TO SOILS PLANS AND DETAILS FOR SOILS.
3. REFER TO UNDERSTORY PLANTING PLANS FOR ADDITIONAL PLANT MATERIALS.
4. ALL 36" BOX TREES SHALL HAVE ROOTBALL ANCHORING SYSTEMS SECURED TO CONCRETE DEADMAN. REFER TO 4/L1-9662.
5. ALL BAMBOO PLANTING SHALL BE BRACED WITH BAMBOO CANES. REFER TO SPECIFICATION.

1 L1-6607 PARK LEVEL ZONE 07 TREE PLANTING PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

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XREFS: TJPA-TB 34x44E.dwg\ XAGRID-96.dwg\ XLZONES.dwg\ XLFLRPKPH1.dwg\ XAFLRPKPH1.dwg\ XLTREEPKPH1.dwg\ XLLITEPKPH1.dwg\ XLCONTPKPH1.dwg\ XLIDPKPH1.dwg

ISSUED FOR CONSTRUCTION

TRANSBAY JOINT POWERS AUTHORITY
CONSULTANT:
TJPA LANDSCAPE ARCHITECTURE
COLLECTION DWG. SERIES: L-LANDSCAPE ARCHITECTURE
PROJECT: TJPA-TB

Key Map

REVISIONS
DESCRIPTION
ISSUED FOR CONSTRUCTION
12/16/14 PER AS NO. 0128

CONTRACT NO.
PROJECT TITLE
TITLE

DRAWING TITLE: Response to RFI TG13.1-091
SKLA-411
DRAWN BY: SJP
CHECKED BY: CL
DATE: 05/05/15
SCALE: AS SHOWN
PROJECT NO.

TRANSBAY TRANSIT CENTER PROGRAM
SAN FRANCISCO, CA
PWP LANDSCAPE ARCHITECTURE
ZONE 07 TREE PLANTING PLAN
PHASE

Transbay Transit Center

APPROVED:
PRINCIPAL LANDSCAPE ARCHITECT: D. FINDLAY
APPROVED:
PROJECT MANAGER: A. EENSRAN
APPROVED:
PROJECT MANAGER: SASSON
DESIGNED BY: P. WALKER
DRAWN BY: J. CANTER
CHECKED BY: C. JONES 05/27/2015
SCALE: 1/8" = 1'-0" | E 140 | 2
SHEET NUMBER: L1-6607 of
SEQUENCE NUMBER

TREE PLANTING SCHEDULE, CONT'D

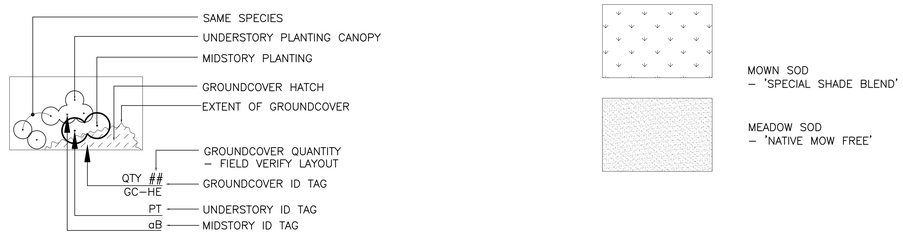
GENERAL PARK LEVEL TREE PLANTING PLANS

SYMBOL	BOTANICAL NAME	COMMON NAME	CONTAINER SIZE	QUANTITY	CONTRACT GROW (CG) OR ACCLIMIZATION PERIOD (AP)	NOTES
MB 72	MAYTENUS BOARIA 'GREEN SHOWERS'	GREEN SHOWERS MAYTENS TREE	72" BOX	3	CG	
ME 48	METROSIDEROS EXCELSA	NEW ZEALAND CHRISTMAS TREE	48" BOX	3	CG	LOW-BRANCHING FORM.
MD 48	MICHELIA DOLTSOPA	SWEET MICHELIA	48" BOX	3	CG	NOT GRAFTED TREES. STANDARD FORM
OS 60	OLEA 'SWAN HILL'	SWAN HILL OLIVE	60" BOX	1		LOW-BRANCHING FORM.
PAC 12	PARAJUBAEA COCOIDES	QUITO COCONUT PALM	8'-12'. AVERAGE 10'	4	AP	
PAC 84	PLATANUS X ACERIFOLIA 'COLUMBIA'	'COLUMBIA' LONDON PLANE	84" BOX	5	CG	STANDARD FORM, 8'-0" CLEAR TRUNK.
PAC 96	PLATANUS X ACERIFOLIA 'COLUMBIA'	'COLUMBIA' LONDON PLANE	96" BOX	3	CG	STANDARD FORM, 8'-0" CLEAR TRUNK.
PH 36	PODOCARPUS HENKELII	LONG-LEAFED YELLOWWOOD	36" BOX	3		
QA 84	QUERCUS AGRIFOLIA	COAST LIVE OAK	84" BOX	6	CG	LOW BRANCHING WITH CLEAR TRUNK
QA 96	QUERCUS AGRIFOLIA	COAST LIVE OAK	96" BOX	12	CG	LOW BRANCHING WITH CLEAR TRUNK
QS 60	QUERCUS SUBER	CORK OAK	60" BOX	3	CG	STANDARD FORM.
QT 60	QUERCUS TOMENTELLA	ISLAND OAK	36" BOX	2	CG	STANDARD FORM
RB 36	RHOPALOSTYLIS BAUERI	NORFOLK ISLAND PALM	8'-10'	2	AP	
RS 48	RHOPALOSTYLIS SAPIDA	NIKAU PALM	8'-12'. AVERAGE 10'	2	AP	
SS 36	SEQUOIA SEMPERVIRENS 'APTOS BLUE'	'APTOS BLUE' COAST REDWOOD	36" BOX	26		
SS 48	SEQUOIA SEMPERVIRENS 'APTOS BLUE'	'APTOS BLUE' COAST REDWOOD	48" BOX	18		
SS 60	SEQUOIA SEMPERVIRENS 'APTOS BLUE'	'APTOS BLUE' COAST REDWOOD	60" BOX	4		
SS 72	SEQUOIA SEMPERVIRENS 'APTOS BLUE'	'APTOS BLUE' COAST REDWOOD	72" BOX	2		
SG 24	SEQUOIADENDRON GIGANTEUM 'PENDULUM'	WEEPING SEQUOIA	24" BOX	2		
SG 36	SEQUOIADENDRON GIGANTEUM 'PENDULUM'	WEEPING SEQUOIA	36" BOX	2		
SG 48	SEQUOIADENDRON GIGANTEUM 'PENDULUM'	WEEPING SEQUOIA	48" BOX	2		
T 8	TRACHYCARPUS WAGNERIANUS	DWARF CHUSAN PALM	5'-10'. AVERAGE 8'	4	AP	
T 12	TRACHYCARPUS WAGNERIANUS	DWARF CHUSAN PALM	10'-14'. AVERAGE 12'	3	AP	
UP 84	ULMUS PARVIFOLIA 'DRAKE'	DRAKE CHINESE ELM	84" BOX	4	CG	
WH 10	WASHINGTONIA ROBUSTA X FILIFERA	HYBRID CALIFORNIA FAN PALM	10'-12'	8	AP	SKINNED TRUNKS, MATCHING. 50/50 BLOODLINE
WH 15	WASHINGTONIA ROBUSTA X FILIFERA	HYBRID CALIFORNIA FAN PALM	14'-16'	7	AP	SKINNED TRUNKS, MATCHING. 50/50 BLOODLINE
WH 20	WASHINGTONIA ROBUSTA X FILIFERA	HYBRID CALIFORNIA FAN PALM	18'-20'	5	AP	SKINNED TRUNKS, MATCHING. 50/50 BLOODLINE
WH 22	WASHINGTONIA ROBUSTA X FILIFERA	HYBRID CALIFORNIA FAN PALM	22'-24'	36	AP	SKINNED TRUNKS, MATCHING. 50/50 BLOODLINE.

NOTE:
- SEE SHEET L-006 AND L-007 FOR COMPLETE TREE LIST
- SEE SHEET L-006 FOR SYMBOL KEY

SHRUBS AND PERENNIALS

GENERAL PARK LEVEL UNDERSTORY PLANTING PLANS



SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
Abo	ACACIA BOORMANII	SNOWY RIVER WATTLE	24" BOX	6'-0"	NATURAL FORM.
aa	AGAVE ATTENUATA	FOXTAIL AGAVE	15 GAL	2'-6"	
AA	ALOE ARBORESCENS	TORCH ALOE	24" BOX	5'-0"	
aB	ALOE BREVIFOLIA	SHORT-LEAVED ALOE	5 GAL	1'-8"	
AB	ANIGOZANTHOS 'BUSH SUNSET'	BUSH SUNSET KANGAROO PAW	5 GAL	2'-0"	
aBG	AGAVE 'BLUE GLOW'	BLUE GLOW AGAVE	5 GAL	3'-0"	
AC	ADENANTHOS CUNEATUS 'CORAL DRIFT'	CORAL DRIFT FLAME BUSH	5 GAL	N/A	
Ac	AGAVE CELSII ALBICANS 'UCB'	NO COMMON NAME	15 GAL	2'-6"	
aC	ARALIA CALIFORNICA	ELK CLOVER	5 GAL	N/A	
ac	ASTELIA CHATHAMICA	SILVER SPEAR	5 GAL	2'-2"	
Acs	ALOE CASTANEA	CAT'S TAIL ALOE	5 GAL	2'-0"	
aF	AGAVE FILIFERA	THREAD AGAVE	5 GAL	1'-6"	
AF	ALOE FEROX	CAPE ALOE	15 GAL	3'-6"	
ag	ACORUS GRAMINEUS 'OGON'	JAPANESE SWEET FLAG	1 GAL	1'-2"	
ag-w	ACORUS GRAMINEUS 'OGON'	JAPANESE SWEET FLAG	1 GAL	1'-2"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
ah	AEONIUM HAWORTHII	PINWHEEL	1 GAL	1'-2"	
aH	ALYOGYNE HUEGELII	BLUE HIBISCUS	15 GAL	5'-0"	NATURAL FORM.
AH	ARCTOSTAPHYLOS 'HOWARD MCMINN'	HOWARD MCMINN MANZANITA	15 GAL	4'-6"	
AI	ACACIA ITEAPHYLLA	WILLOW WATTLE	24" BOX	6'-0"	NATURAL FORM.
ai	ARISTEA INAEQUALIS	NO COMMON NAME #1	1 GAL	2'-0"	
AJ	ARCTOSTAPHYLOS 'JOHN DOURLEY'	JOHN DOURLEY MANZANITA	5 GAL	4'-0"	
aLc	ALOE CAMPERI	NUBIAN ALOE	15 GAL	2'-0"	
Am	AEONIUM 'MINT SAUCER'	MINT SAUCER AEONIUM	5 GAL	1'-6"	
aM	ACANTHUS MOLLIS	BEAR'S BREECH	5 GAL	2'-6"	
aM-w	ACANTHUS MOLLIS	BEAR'S BREECH	5 GAL	2'-6"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
AM	AZARA MICROPHYLLA	BOXLEAF AZARA	24" BOX	5'-0"	NATURAL FORM.
ao	AGAVE OVATIFOLIA	WHALE'S TONGUE AGAVE	5 GAL	3'-0"	
AP	ALOE PLICATILIS	FAN ALOE	24" BOX	N/A	
Ap	ARCTOSTAPHYLOS PAJARDENSIS 'PARADISE'	PARADISE MANZANITA	15 GAL	4'-6"	
ap	ARTEMISIA 'POWIS CASTLE'	POWIS CASTLE WORMWOOD	1 GAL	2'-6"	
AS	ADENANTHOS SERICEUS	COASTAL WOOLLYBUSH	15 GAL	4'-0"	
as	AGAPANTHUS 'STORM CLOUD'	STORM CLOUD LILY OF THE NILE	5 GAL	1'-6"	
As	ALOE STRIATA	CORAL ALOE	5 GAL	1'-6"	
aS	ARCTOSTAPHYLOS 'SENTINEL'	SENTINEL MANZANITA	15 GAL	5'-0"	
Asp	ALOE SPECIOSA	TILT-HEAD ALOE	15 GAL	2'-6"	
ast	AGAVE STRICTA	HEDGEHOG AGAVE	5 GAL	1'-6"	
AT	ALOE THRASKII	COAST ALOE	24" BOX	N/A	3'-0" MINIMUM TRUNK HEIGHT.
At	ALSTROEMERIA 'THE THIRD HARMONIC'	PERUVIAN LILY	1 GAL	1'-6"	
AV	ACACIA VESTITA	HAIRY WATTLE	24" BOX	N/A	NATURAL FORM.
av	AGAVE VICTORIAE-REGINAE	QUEEN VICTORIA AGAVE	5 GAL	1'-4"	
aV	ALOE VAOMBE	MALAGASY TREE ALOE	24" BOX	N/A	2'-0" MINIMUM TRUNK HEIGHT.
Az	AEONIUM ARBOREUM 'ZWARTKOP'	BLACK ROSE AEONIUM	5 GAL	1'-6"	
BD	BERBERIS DARWINII	DARWIN BARBERRY	5 GAL	3'-0"	
BE	BANKSIA ERICIFOLIA	HEATH BANKSIA	15 GAL	4'-0"	
BL	BERBERIS LOMARIIFOLIA	CHINESE HOLLY	15 GAL	N/A	
bs	BABIANA STRICTA	BABOON FLOWER	1 GAL	N/A	
bS	BANKSIA SPECIOSA	SHOWY BANKSIA	15 GAL	N/A	
BS	BANKSIA SPINULOSA 'SCHNAPPER'S POINT'	HAIRPIN BANKSIA	15 GAL	3'-0"	
Bsd	BRACHYGLOTTIS 'SILVER DORMOUSE'	NO COMMON NAME #2	5 GAL	2'-8"	
BY	BESCHORNERIA YUCCOIDES	MEXICAN LILY	5 GAL	3'-0"	
C	CRASSULA LYCOPODIOIDES	WATCH CHAIN	1 GAL	1'-2"	
CA	CAREX ALBULA	FROSTED CURLS HAIR SEDGE	1 GAL	1'-6"	
Ca	CORDYLINE AUSTRALIS 'JEL01' P.P.A.F.	BURGUNDY SPIRE DRACAENA PALM	5 GAL	N/A	
Ca-15	CORDYLINE AUSTRALIS 'JEL01' P.P.A.F.	BURGUNDY SPIRE DRACAENA PALM	15 GAL		
cb	CANTUA BUXIFOLIA	SACRED FLOWER OF THE INCAS	15 GAL	4'-0"	
CB	CHORIZEMA 'BUSH FLAME'	BUSH PEA	5 GAL	2'-0"	
CC	COPROSMA 'COPPERSHINE'	COPPERSHINE MIRROR PLANT	5 GAL	3'-0"	
cC	COTINUS COGGYGRIA 'ROYAL PURPLE'	PURPLE SMOKE TREE	15 GAL	N/A	NATURAL FORM.
Cc	CYATHEA COOPERI	AUSTRALIAN TREE FERN	15 GAL	N/A	
CE	CHONDROPETALUM ELEPHANTINUM	LARGE CAPE RUSH	15 GAL	3'-6"	
CeC	CEANOTHUS 'CONCHA'	CONCHA CEANOTHUS	15 GAL	5'-0"	
CF	CALAMAGROSTIS FOLIOSUS	MENDOCINO REED GRASS	1 GAL	2'-0"	
cF	CAREX FLAGELLIFERA	WEEPING BROWN SEDGE	1 GAL		
Cf	CEANOTHUS 'FROSTY BLUE'	FROSTY BLUE CEANOTHUS	15 GAL	N/A	NATURAL FORM.
cg	CISTANTHE GRANDIFLORA 'JAZZ TIME'	ROCK PURSLANE	1 GAL	1'-6"	
cG	COREOPSIS GIGANTEA	GIANT SEA DAHLIA	5 GAL	N/A	
ChC	CHAMAEROPS HUMILIS 'CERIFERA'	SILVER MEDITERRANEAN FAN PALM	24" BOX	4'-0"	

NOTE:
- SEE SHEETS L-007, L-008 & L-009 FOR COMPLETE UNDERSTORY PLANT LIST.
- SEE SHEET L-007 FOR SYMBOL KEY.

TRANSBAY JOINT POWERS AUTHORITY

PWP LANDSCAPE ARCHITECTURE

SKLA-417.0

DRAWN BY: SJP
CHECKED BY: CL

DRAWING TITLE: Response to RFI TG13.1-093 through TG13.1-115

DATE: 05/07/15

SCALE: AS SHOWN

PROJECT NO.

REVISIONS

ISSUED FOR CONSTRUCTION

L-0007

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

XREFS: TJPA-TB FOLLOW 34x44E.dwg

SHRUBS AND PERENNIALS, CONT'D

GENERAL PARK LEVEL UNDERSTORY PLANTING PLANS

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
ci	CORREA 'IVORY BELLS'	WHITE AUSTRALIAN FUCHSIA	5 GAL	3'-0"	
CL	CHAMELAUCIUM 'LADY STEPHANIE'	GERALDTON WAXFLOWER	5 GAL	4'-0"	
cL	CISTUS LADANIFER 'BLANCHE'	WHITE ROCKROSE	15 GAL	3'-0"	
co	COTYLEDON ORBICULATA VAR. OBLONGA 'FLAVIDA'	FINGER ALOE	5 GAL	1'-6"	
Cp	CESTRUM PARQUI	CHILEAN JESSAMINE	15 GAL	2'-8"	
cP	CUSSONIA PANICULATA SINUATA	MOUNTAIN CABBAGE TREE	24" BOX	N/A	
CR	CEANOTHUS 'RAY HARTMAN'	RAY HARTMAN CEANOTHUS	24" BOX	N/A	NATURAL FORM.
Cs	CLEISTOCACTUS STRAUSII	SILVER TORCH CACTUS	15 GAL	N/A	MULTI-COLUMNAR SPECIMEN WITH A TOTAL AGGREGATE STEM HEIGHT OF 10' AND A MINIMUM OF 3 CACTUS STEMS PER PLANT.
CS	CORNUS SERICEA 'ISANTI'	ISANTI RED-TWIG DOGWOOD	15 GAL	4'-6"	
CS-w	CORNUS SERICEA 'ISANTI'	ISANTI RED-TWIG DOGWOOD	15 GAL	4'-6"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
CY	CEANOTHUS 'YANKEE POINT'	YANKEE POINT CEANOTHUS	5 GAL	5'-6"	
Cy	CYCAS REVOLUTA	SAGO PALM	24" BOX		
da	DICKSONIA ANTARCTICA	TASMANIAN TREE FERN	15 GAL	N/A	
da-24	DICKSONIA ANTARCTICA	TASMANIAN TREE FERN	24" BOX	N/A	
db	DUDLEYA BRITTONII	GIANT CHALK DUDLEYA	1 GAL	N/A	
dF	DICHROA FEBRIGUA	BLUE EVERGREEEN HYDRANGEA	5 GAL	3'-6"	
dL	DASYLIRION LONGISSIMUM	MEXICAN GRASS TREE	24" BOX	N/A	
DL	DIETES 'LEMON DROP'	LEMON DROP FORTNIGHT LILY	5 GAL	2'-0"	
dp	DIERAMA PULCHERRIMUM	FAIRY WAND	5 GAL	N/A	
DP	DORYANTHES PALMERI	GIANT SPEAR LILY	15 GAL	N/A	
dS	DEPPEA SPLENDENS	SPLENDENS DEPPEA	5 GAL	N/A	
du	DUDLEYA 'FRANK REINELT'	FRANK REINELT DUDLEYA	1 GAL	1'-0"	
dy	DYCKIA 'CHERRY COKE'	'CHERRY COKE' DYCKIA	5 GAL	N/A	
eA	ECHEVERIA 'AFTERGLOW'	'AFTERGLOW' ECHEVERIA	6" POT	1'-0"	
Eb	ERYISIMUM 'BOWLE'S MAUVE'	BOWLE'S MAUVE WALLFLOWER	5 GAL	2'-6"	
ec	ECHEVERIA CANTE	CANTE ECHEVERIA	6" POT	10"	
Ec	ECHIUM CANDICANS	PRIDE OF MADEIRA	15 GAL	6'-0"	
eC	ELEGIA CAPENSIS	HORSETAIL RESTIO	15 GAL	3'-8"	
Ee	ECHEVERIA ELEGANS	HENS AND CHICKS	1 GAL	1'-0"	
EF	ESCALLONIA 'FRADESII'	FRADESI ESCALLONIA	24" BOX	3'-0"	MATCHING SPECIMENS, MINIMUM 3'-0" TO MAXIMUM 4'-0" TALL.
Eg	ERIGERON GLAUCUS	SEASIDE DAISY	1 GAL	1'-6"	
EG	ERIOGONUM GIGANTEUM	ST. CATHERINE'S LACE	5 GAL	4'-0"	
eG	ERIOGONUM GRANDE RUBESCENS	RED-FLOWERED BUCKWHEAT	1 GAL	1'-6"	
eL	EUPHORBIA LAMBII	TREE EUPHORBIA	15 GAL	N/A	
El	ERIOGONUM LATIFOLIUM	COAST BUCKWHEAT	1 GAL	1'-6"	
EP	ECHINOPSIS PACHINOI	SAN PEDRO CACTUS	24" BOX	N/A	
eq	EQUISETUM SCIRPOIDES	DWARF HORSETAIL	1 GAL	1'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
er	ECHEVERIA 'RED EDGE'	'RED EDGE' ECHEVERIA	1 GAL	1'-0"	
eV	EURYOPS VIRGINEUS	HONEY EURYOPS	5 GAL	2'-8"	
EW	EUPHORBIA CHARACIAS WULFENII	MEDITERRANEAN SPURGE	5 GAL	3'-0"	
Fa	FUCHSIA ARBORESCENS	LILAC FUSCHSIA	5 GAL	N/A	
Fb	FUCHSIA BOLIVIANA	BOLIVIAN FUCHSIA	5 GAL	N/A	
fC	FESTUCA CALIFORNICA	CALIFORNIA FESCUE	1 GAL	2'-0"	
fM	FUCHSIA MAGELLANICA	HUMMINGBIRD FUCHSIA	5 GAL	2'-8"	
FM	FURCRAEA MACDOUGALLII	MACDOUGALL'S FURCRAEA	24" BOX	N/A	
FR	FRANCOA RAMOSA	MAIDEN'S WREATH	1 GAL	1'-6"	
Fs	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	15 GAL	4'-0"	
GE	GARRYA ELLIPTICA	COAST SILKTASSEL	15 GAL	5'-0"	
GL	GRISELINIA LITTORALIS	KAPUKA	15 GAL	6'-0"	
gM	GERANIUM MADERENSE	MADEIRA CRANESBILL	1 GAL	N/A	
GM	GUNNERA MANICATA	GIANT RHUBARB	15 GAL	7'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
Ha	HETEROMELES ARBUTIFOLIA	TOYON	15 GAL	5'-0"	
HL	HERACLEUM LANATUM	COW PARSNIP	1 GAL	2'-6"	
HS	HAKEA SUAVEOLENS	SWEET HAKEA	24" BOX	6'-0"	
IC	IOCHROMA CYANEUM 'BURGUNDY'	NO COMMON NAME	5 GAL	5'-0"	
ic	ISOLEPIS CERNUA	FIBER OPTICS PLANT	1 GAL	1'-2"	
id	IRIS DOUGLASIANA HYBRIDS	DOUGLAS IRIS HYBRIDS	1 GAL	1'-6"	
iF	ISOPOGON FORMOSUS	DRUMSTICKS	5 GAL	2'-6"	
IS	ISCHYROLEPIS SUBVERTICILLATA	BROOM RESTIO	15 GAL	6'-0"	
jC	JUNCUS 'CARMAN'S JAPANESE'	CARMAN'S JAPANESE RUSH	5 GAL	2'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
JP	JUNCUS PALLIDUS	PALE RUSH	5 GAL	2'-0"	
JP-w	JUNCUS PALLIDUS	PALE RUSH	5 GAL	2'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
Jp	JUNCUS PATENS 'ELK BLUE'	CALIFORNIA GRAY RUSH	5 GAL	2'-0"	
Jp-w	JUNCUS PATENS 'ELK BLUE'	CALIFORNIA GRAY RUSH	5 GAL	2'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
JQ	JUNCUS EFFUSUS 'QUARTZ CREEK'	QUARTZ CREEK RUSH	5 GAL	2'-0"	
JQ-w	JUNCUS EFFUSUS 'QUARTZ CREEK'	QUARTZ CREEK RUSH	5 GAL	2'-0"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
KB	KALANCHOE BEHARENSIS	FELT PLANT	15 GAL	N/A	
LA	LUMA APICULATA	CHILEAN MYRTLE	24" BOX	N/A	NATURAL FORM.
La	LUPINUS ALBIFRONS VAR. COLLINUS	DWARF SILVER BUSH LUPINE	5 GAL	N/A	
Lar	LUPINUS ARBOREUS	BUSH LUPINE	5 GAL	3'-6"	
lb	LEUCOPHYTA BROWNII	CUSHION BUSH	1 GAL	2'-6"	

This is " iF " : lowercase i and uppercase F

GENERAL PARK LEVEL UNDERSTORY PLANTING PLANS

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
Lc	LEUCADENDRON 'CHIEF'	NO COMMON NAME #8	15 GAL	3'-0"	
lel	LEUCADENDRON LINIFOLIUM	LINELEAF CONEBUSH	5 GAL	2'-8"	
Lg	LAVANDULA X INTERMEDIA 'GROSSO'	LAVANDIN	5 GAL	2'-4"	
LI	LEUCOSPERMUM 'BLANCHE ITO'	BLANCHE ITO PINCUSHION	15 GAL	3'-6"	
ll	LEONOTIS LEONURUS	LIONS TAIL	5 GAL	3'-0"	
LL	LOMANDRA LONGIFOLIA 'BREEZE'	DWARF MAT RUSH	1 GAL	2'-6"	
LM	LEUCADENDRON MERIDIANUM 'MORE SILVER'	NO COMMON NAME #9	5 GAL	2'-6"	
LN	LAURUS NOBILIS	SWEET BAY	15 GAL	3'-6"	NATURAL FORM.
LP	LEPIDOZAMIA PEROFFSKYANA	SCALY ZAMIA	24" BOX		
lP	LIBERTIA PEREGRINANS	ORANGE LIBERTIA	1 GAL	1'-0"	
lp	LIMONIUM PEREZII	SEA LAVENDER	1 GAL	1'-6"	
Lr	LEPTOSPERMUM 'RUBY GLOW'	NEW ZEALAND TEA TREE	15 GAL	N/A	
LR	LAPAGERIA ROSEA	CHILEAN BELLFLOWER	5 GAL	N/A	50% 'TOQUI', 50% 'MONTENEGRO'S RED'
LV	LEUCOSPERMUM 'VELDFIRE'	VELDFIRE PINCUSHION	15 GAL	3'-6"	
mC	METROSIDEROS COLLINA 'SPRINGFIRE'	LEHUA	24" BOX	N/A	
mc	MYRICA CALIFORNICA	PACIFIC WAX MYRTLE	15 GAL	N/A	
MC	MYRTUS COMMUNIS	COMMON MYRTLE	15 GAL	4'-0"	
Mi	MELALEUCA INCANA	GRAY HONEY MYRTLE	15 GAL	N/A	
mic	MICHELIA CHAMPACA	CHAMPACA	24" BOX	N/A	LOW-BRANCHED.
Mj	MACROZAMIA JOHNSONII	NEW SOUTH WALES MACROZAMIA	24" BOX	N/A	
Mm	MACROZAMIA MOOREI	CARNAVON GORGE MACROZAMIA	24" BOX	N/A	
MM	MELIANTHUS MAJOR	HONEY BUSH	15 GAL	3'-0"	
MR	MUHLENBERGIA RIGENS	DEER GRASS	5 GAL	3'-0"	
Ms	MATTEUCCIA STRUTHIOPTERIS	OSTRICH FERN	5 GAL	1'-6"	
Ms-w	MATTEUCCIA STRUTHIOPTERIS	OSTRICH FERN	5 GAL	1'-6"	GROW PLANT IN APPROVED WETLAND PLANTING MEDIUM IN APPROVED CONTAINER.
ms	MICROLEPIA STRIGOSA	LACE FERN	5 GAL		
mT	MISCANTHUS TRANSMORRISONENSIS	EVERGREEN MISCANTHUS	5 GAL	N/A	
MY	MICHELIA YUNNANENSIS	SCENTED PEARL	15 GAL	4'-0"	
OE	OLEA EUROPEA 'MONTRA'	LITTLE OLIVE	24" BOX	3'-6"	
oh	ORIGANUM 'HOPLEY'S	HOPLEY'S OREGANO	1 GAL	1'-6"	
Pp	PHYLICA PUBESCENS	FEATHERHEAD	5 GAL	2'-6"	
PA	PLECTRANTHUS ARGENTATUS	SILVER PLECTRANTHUS	1 GAL	2'-6"	
Pa	PLUMBAGO AURICULATA	CAPE PLUMBAGO	15 GAL	4'-6"	
pa	PUYA ALPESTRIS	SAPPHIRE TOWER	5 GAL	2'-0"	
PB	PHYLLOSTACHYS BAMBUSOIDES	GIANT TIMBER BAMBOO	25 GAL	5-0"	15' HEIGHT, MINIMUM 1" TO MAXIMUM 2" CALIPER CULMS, WITH MINIMUM 3 CULMS PER CONTAINER.
PC	PITTOSPORUM CRASSIFOLIUM	KARO	24" BOX	N/A	NATURAL FORM.
Pcc	PUYA CAERULEA CAERULEA	SILVER PUYA	5 GAL	2'-0"	
PD	PHORMIUM 'DUSKY CHIEF'	NEW ZEALAND FLAX	5 GAL	2'-8"	
Pf	PSEUDOPANAX FEROX	FIERCE LANCEWOOD	15 GAL	N/A	
PF	PHLOMIS FRUTICOSA	JERUSALEM SAGE	1 GAL	N/A	
PM	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	5 GAL	2'-0"	
PP	PROTEA 'PINK ICE'	PINK ICE PROTEA	15 GAL	3'-6"	
pp	PSORALEA PINNATA	SCURFY PEA SHRUB	15 GAL	4'-0"	
pS	PENNISETUM SPATHIOLATUM	SLENDER VELDT GRASS	1 GAL	2'-0"	
pTo	PELARGONIUM TOMENTOSUM	PEPPERMINT-SCENTED GERANIUM	1 GAL	2'-0"	
RA	RHAMNUS ALATERNUS	ITALIAN BUCKTHORN	15 GAL	N/A	NATURAL FORM.
RC	ROMNEYA COULTERI	MATILIJA POPPY	5 GAL	N/A	
RI	RHUS INTEGRIFOLIA	LEMONADE BERRY	15 GAL	4'-0"	
RL	RHAMNUS CALIFORNICA 'EVE CASE'	EVE CASE COFFEEBERRY	15 GAL	4'-0"	
Ro	ROSMARINUS OFFICINALIS 'TUSCAN BLUE'	TUSCAN BLUE ROSEMARY	5 GAL	3'-0"	
Rp	RUBUS PARVIFOLIUS	SAMLL-LEAF BRAMBLE	5 GAL	N/A	
RS	RIBES S. GLUTINOSUM 'CLAREMONT'	RED-FLOWERING CURRANT	15 GAL	N/A	
RV	RHAMNUS ALATERNUS 'VARIEGATA'	VARIEGATED ITALIAN BUCKTHORN	15 GAL	N/A	
Sa	SALVIA APIANA	WHITE SAGE	5 GAL	N/A	
SG	STIPA GIGANTEA	GIANT FEATHER GRASS	5 GAL	N/A	
sl	SANTOLINA NEAPOLITANA 'LEMON QUEEN'	LEMON QUEEN LAVENDER COTTON	1 GAL	1'-10"	
sm	SENECIO MANDRALISCAE	KLEINIA	1 GAL	1'-2"	
SP	SETARIA PALMIFOLIA	PALM GRASS	5 GAL	N/A	
SR	STRELITZIA REGINAE	BIRD OF PARADISE	15 GAL	2'-6"	
ss	SISYRINCHIUM STRIATUM	NO COMMON NAME #10	1 GAL	1'-8"	
Sw	SALVIA CLEVELANDII 'WINNIFRED GILMAN'	WINNIFRED GILMAN BLUE SAGE	5 GAL	N/A	
Sy	SYMPHORICARPOS ALBUS	COMMON SNOWBERRY	5 GAL	N/A	
TC	TECOMA CAPENSIS	CAPE HONEYSUCKLE	15 GAL	4'-0"	
tF	TEUCRIUM FRUTICANS	BUSH GERMANDER	5 GAL	3'-0"	
tg	TELLIMA GRANDIFLORA	FRINGE CUPS	1 GAL	1'-6"	
tH	TIBOUCHINA HETEROMALLA	SILVER-LEAFED PRINCESS FLOWER	5 GAL	N/A	
Tp	TETRAPANAX PAPYRIFER	RICE PAPER PLANT	15 GAL	N/A	
VD	VIBURNUM DAVIDII	DAVID VIBURNUM	15 GAL	3'-0"	
WF	WOODWARDIA FIMBRIATA	GIANT CHAIN FERN	5 GAL	2'-6"	
Wn	WOLLEMIA NOBILIS	WOLLEMI PINE	15 GAL	N/A	
WW	WESTRINGIA 'WYNYABBIE GEM'	COAST ROSEMARY	5 GAL	3'-0"	
XP	XANTHORRHOEA PREISII	AUSTRALIAN GRASS TREE	24" BOX	N/A	
Zf	ZAMIA FURFURACEA	CARBOARD PALM	15 GAL	N/A	

NOTE:
- SEE SHEETS L-007, L-008 & L-009 FOR COMPLETE UNDERSTORY PLANT LIST.
- SEE SHEET L-007 FOR SYMBOL KEY.

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

crystal May 07, 2015 - 11:19am Z:\PCP\BOI\Field\Field Sketches\SKLA-417 Planting RFI TG13.1-093 to 115\SKLA 417_L-0008.dwg

XREFS: TJPA-TB FOLLOW 34x44E.dwg

TRANSBAY JOINT POWERS AUTHORITY

PWP LANDSCAPE ARCHITECTURE

SKLA-417.1

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CHECKED BY: CL

DATE: 05/07/15

DRAWING TITLE: Response to RFI TG13.1-093 through TG13.1-115

SCALE: AS SHOWN
PROJECT NO.

REVISIONS

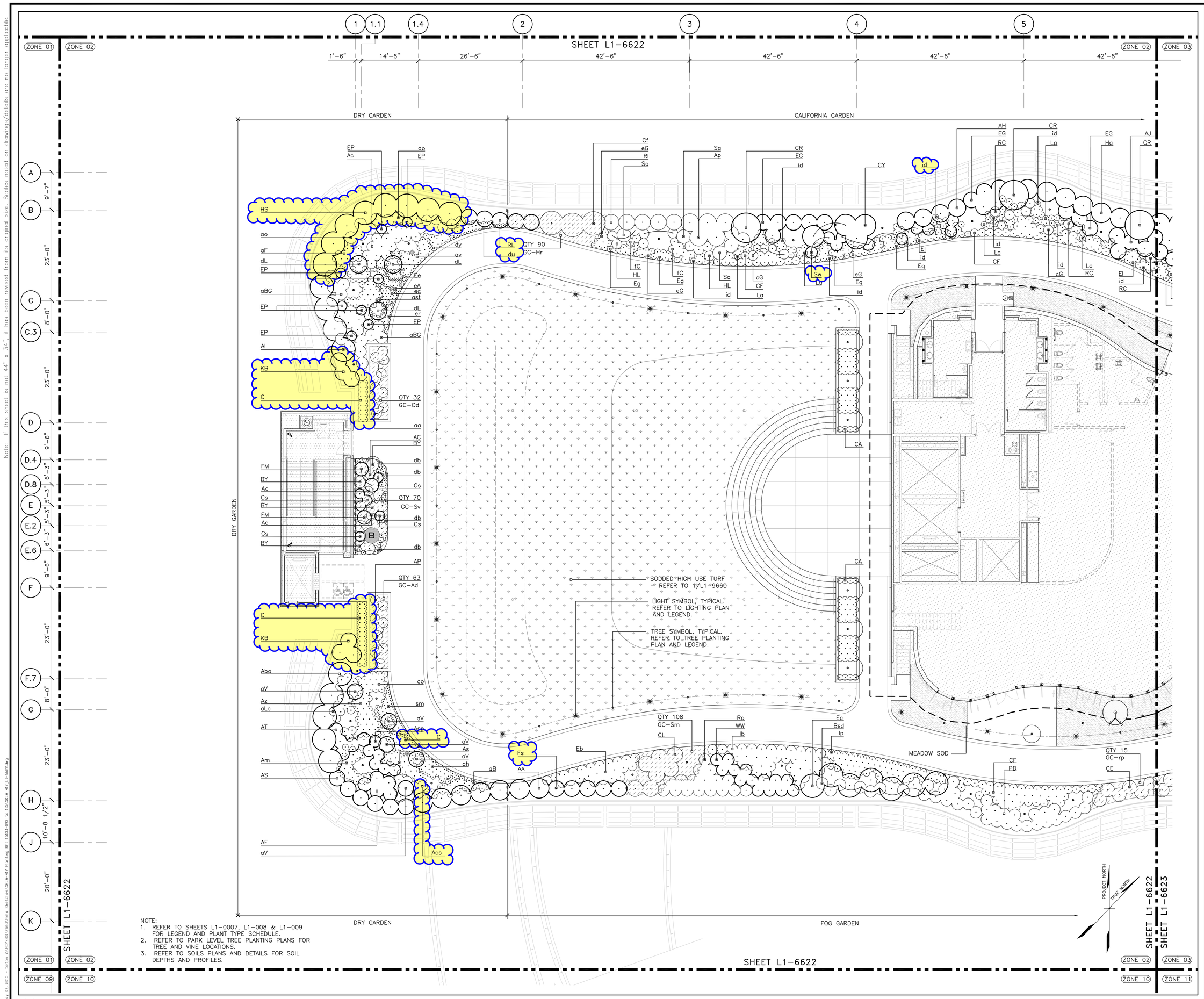
LANDSCAPE ARCHITECTURE LEGEND

TRANSBAY TRANSIT CENTER PROGRAM

Transbay Transit Center

ISSUED FOR CONSTRUCTION

L-0008



NOTE:
1. REFER TO SHEETS L1-0007, L1-008 & L1-009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 PARK LEVEL ZONE 02 UNDERSTORY PLANTING PLAN

L1-6622

SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

SKLA-417.2

DRAWN BY: SJP
CHECKED BY: CL

DATE: 05/05/15

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115

SCALE: AS SHOWN
PROJECT NO.

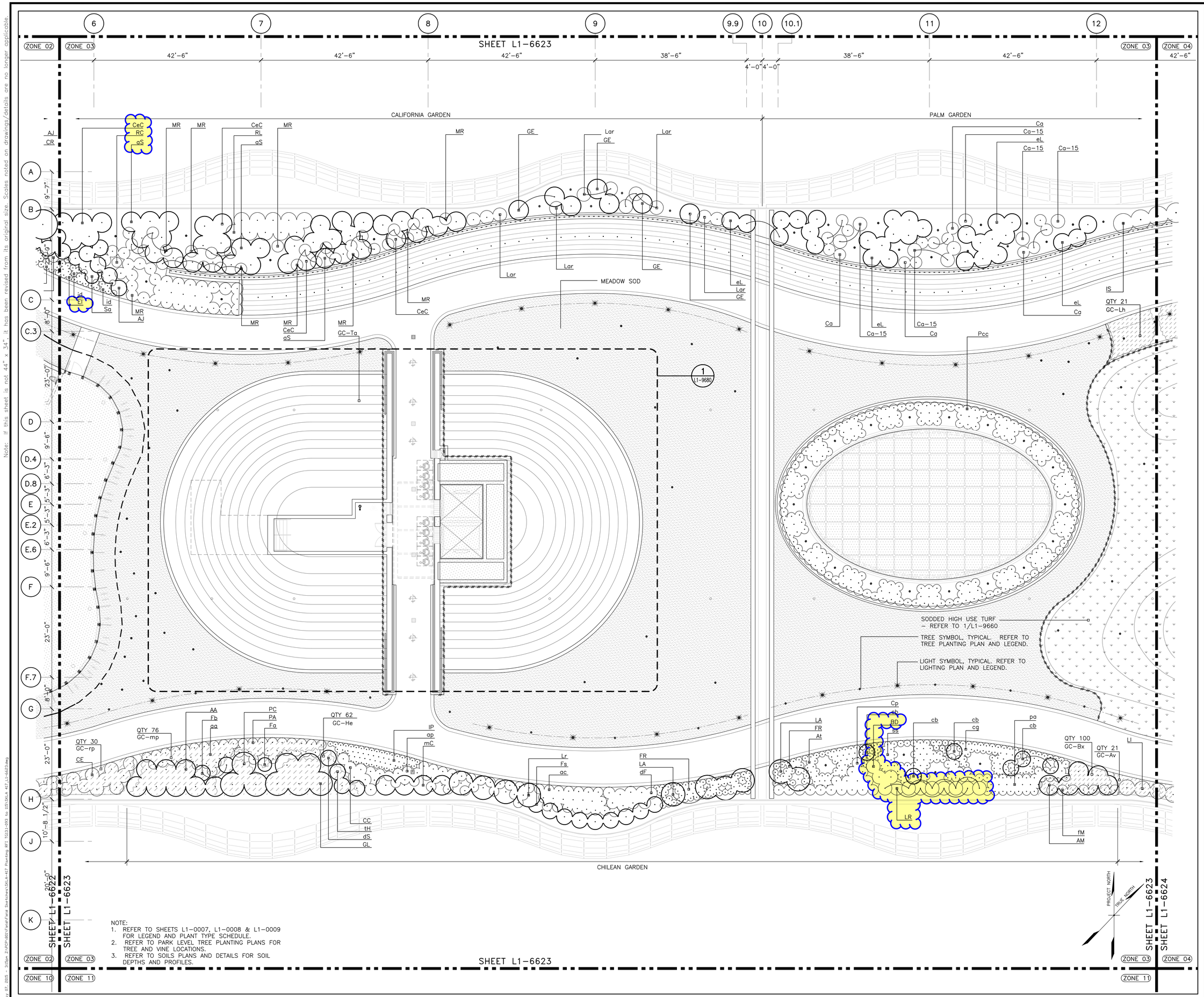
LANDSCAPE ARCHITECTURE

ZONE 02 UNDERSTORY PLANTING PHASE 1

REVISIONS

ISSUED FOR CONSTRUCTION

XREFS: TJPA-TB 34x44E.dwg\ XAGRID-96.dwg\ XLZONES.dwg\ XAFLRPKPH1.dwg\ XLFLRPKPH1.dwg\ XLPLNTPKPH1.dwg\ XLTREEPKPH1.dwg\ XLHDRPKPH1.dwg\ XLLITEPKPH1.dwg\ XLPLNTPKPH1-96.dwg



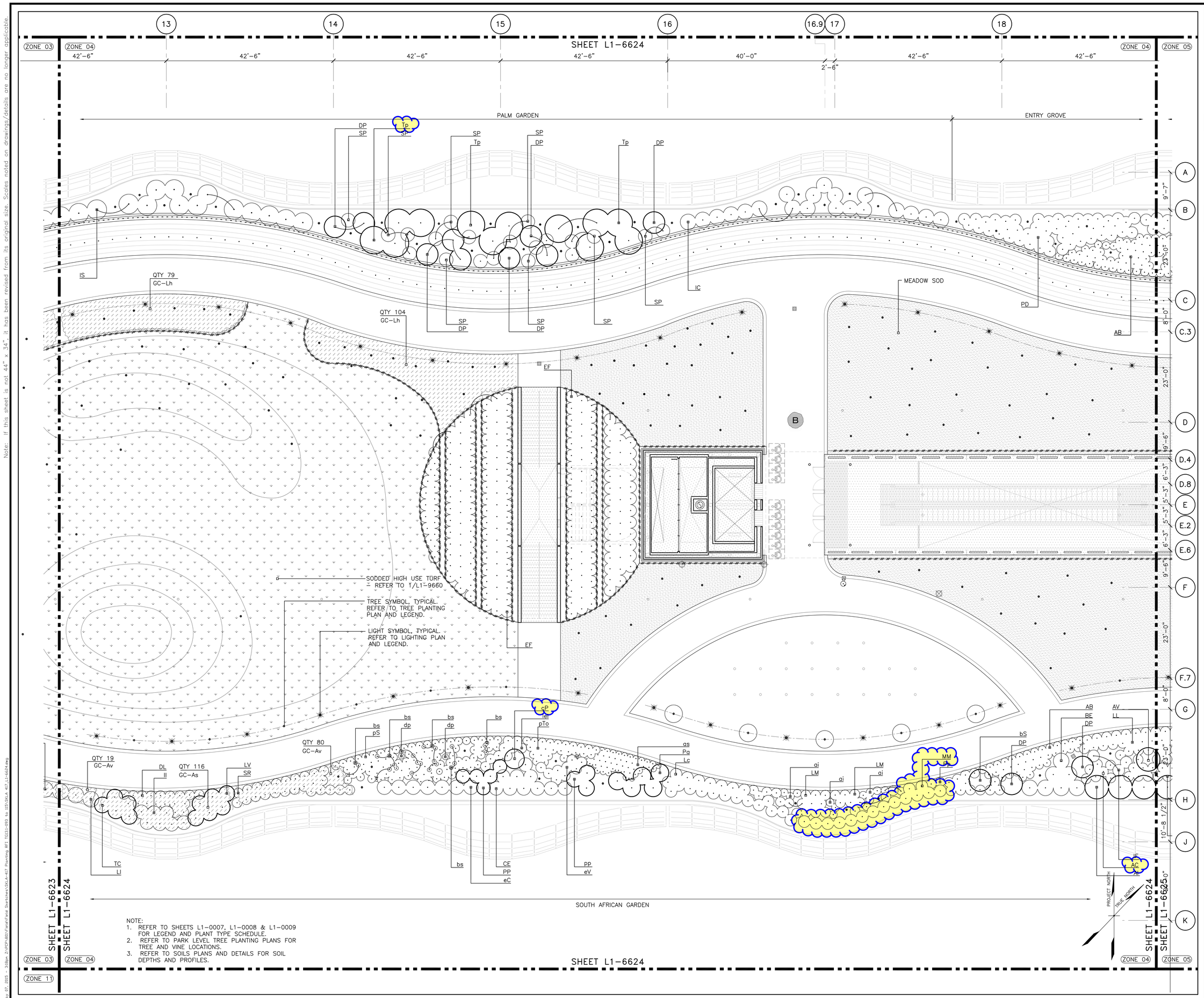
NOTE:
1. REFER TO SHEETS L1-0007, L1-0008 & L1-0009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 L1-6623 PARK LEVEL ZONE 03 UNDERSTORY PLANTING PLAN
SCALE: 1/8" = 1'-0"

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115
SCALE: AS SHOWN
PROJECT NO.
DATE: 05/05/15
DRAWN BY: SJP
CHECKED BY: CL
SKLA-417.3
LANDSCAPE ARCHITECTURE
ZONE 03 UNDERSTORY PLANTING PLAN
PHASE 1
REVISIONS
ISSUED FOR CONSTRUCTION
SHEET NUMBER L1-6623

ISSUED FOR CONSTRUCTION



NOTE:
1. REFER TO SHEETS L1-0007, L1-0008 & L1-0009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 / L1-6624 PARK LEVEL ZONE 04 UNDERSTORY PLANTING PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

crystal May 07, 2015 - 3:18pm Z:\PCP\001\Field Sketches\SKLA-417 Planting RFI TG13.1-093 to 115\SKLA 417.L1-6624.dwg

XREFS: TJPA-TB 34x44E.dwg\ XAGRID-96.dwg\ XLZONES.dwg\ XLFLRPKPH1.dwg\ XAFLRPKPH1.dwg\ XLPLNTPKPH1.dwg\ XLTREEPKPH1.dwg\ XLHDRPKPH1.dwg\ XLLITEPKPH1.dwg\ XLPLNTPKPH1-96.dwg

ISSUED FOR CONSTRUCTION

TRANSBAY JOINT POWERS AUTHORITY

PWP LANDSCAPE ARCHITECTS

SKLA-417.4

DRAWN BY: SJP
CHECKED BY: CL

DATE: 05/05/15

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115

SCALE: AS SHOWN
PROJECT NO.

REVISIONS

CONTRACT NO.

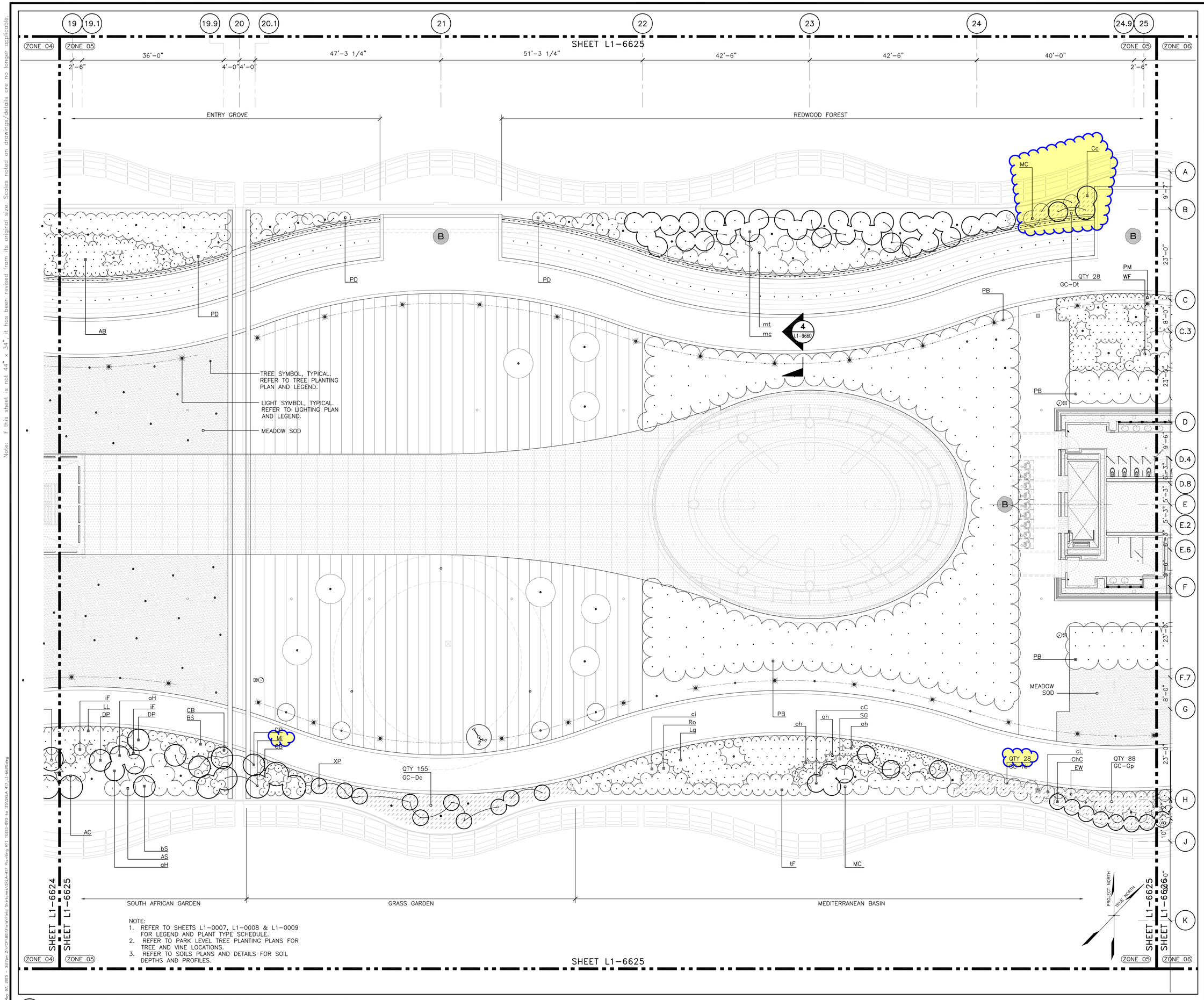
PROJECT TITLE: TRANSBAY TRANSIT CENTER PROGRAM
SAN FRANCISCO, CA

LANDSCAPE ARCHITECTURE
PWP

ZONE 04 UNDERSTORY PLANTING PHASE I

Transbay Transit Center

PRINCIPAL LA: FINDLAY
PROJECT MANAGER: CENSPAN
PROJECT MANAGER: SASSON
DESIGNED BY: P. WALKER
DRAWN BY: C. JONES
SCALE: AS NOTED
SIZE: E
FACILITY NO.: 140
REVISION: 1
SHEET NUMBER: L1-6624
SEQUENCE NUMBER: ___ of ___



NOTE:
1. REFER TO SHEETS L1-0007, L1-0008 & L1-0009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 L1-6625 PARK LEVEL ZONE 05 UNDERSTORY PLANTING PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

crystal May 07, 2015 - 3:27pm Z:\PCM\481\Field\Field Sketches\SKLA-417 Planting RFI TG13.1-093 to 115\SKLA 417.L1-6625.dwg

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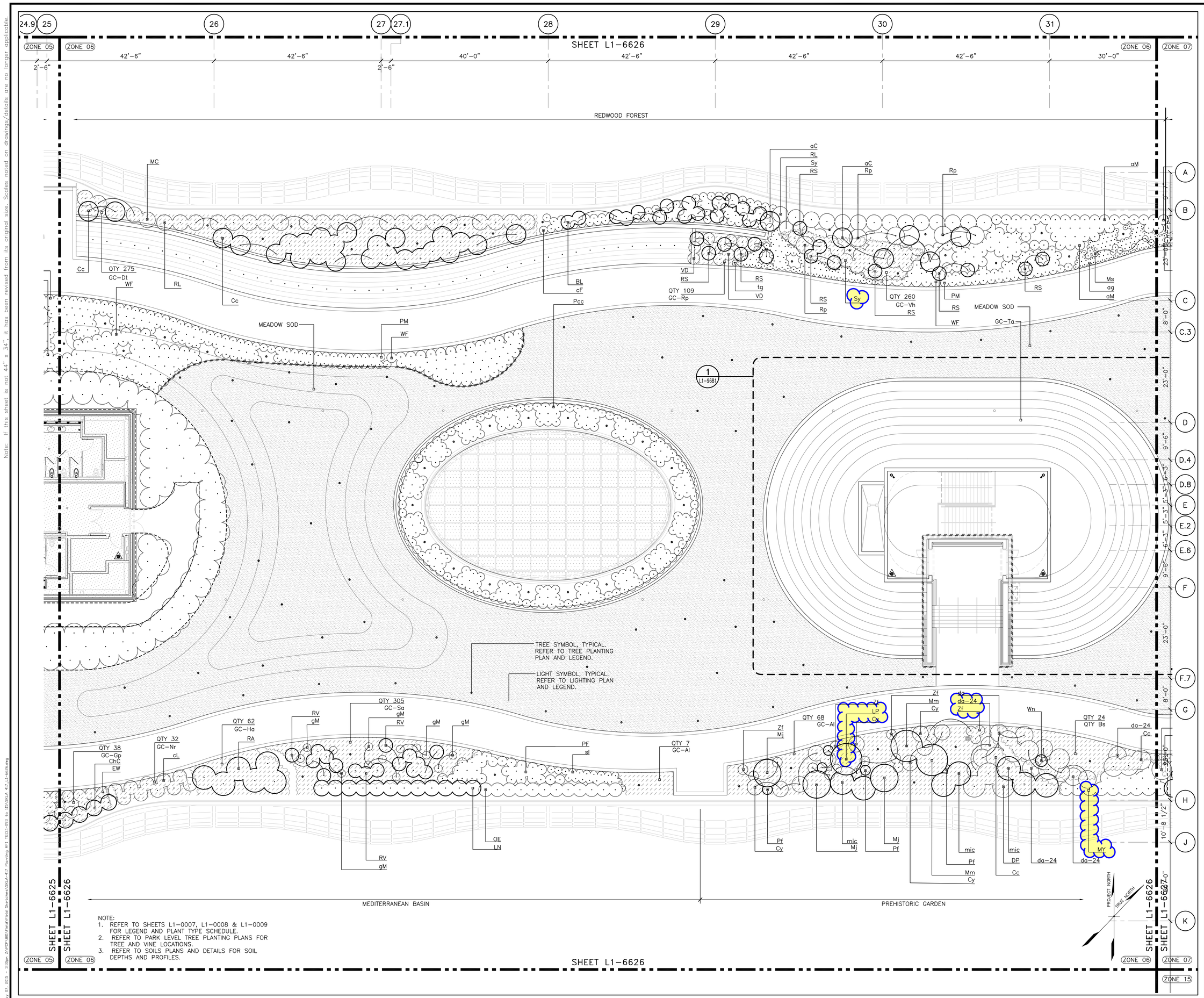
ISSUED FOR CONSTRUCTION

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115
SKLA-417.5
DRAWN BY: SJP
CHECKED BY: CL
DATE: 05/05/15
SCALE: AS SHOWN
PROJECT NO.
LANDSCAPE ARCHITECTURE
PWP
TRANSBAY TRANSIT CENTER PROGRAM
ZONE 05 UNDERSTORY PLANTING PLAN
PHASE 1
L1-6625



NOTE:
1. REFER TO SHEETS L1-0007, L1-0008 & L1-0009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 L1-6626 PARK LEVEL ZONE 06 UNDERSTORY PLANTING PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

crystal May 07, 2015 - 3:30pm Z:\PCP\001\Field\Field Sketches\SKLA-417 Planting RFI TG13.1-093 to 115\SKLA 417_L1-6626.dwg

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ISSUED FOR CONSTRUCTION

TRANSBAY JOINT POWERS AUTHORITY
PWP LANDSCAPE ARCHITECTURE

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115
SCALE: AS SHOWN
PROJECT NO.
DATE: 05/05/15
DRAWN BY: SJP
CHECKED BY: CL

SKLA-417.6

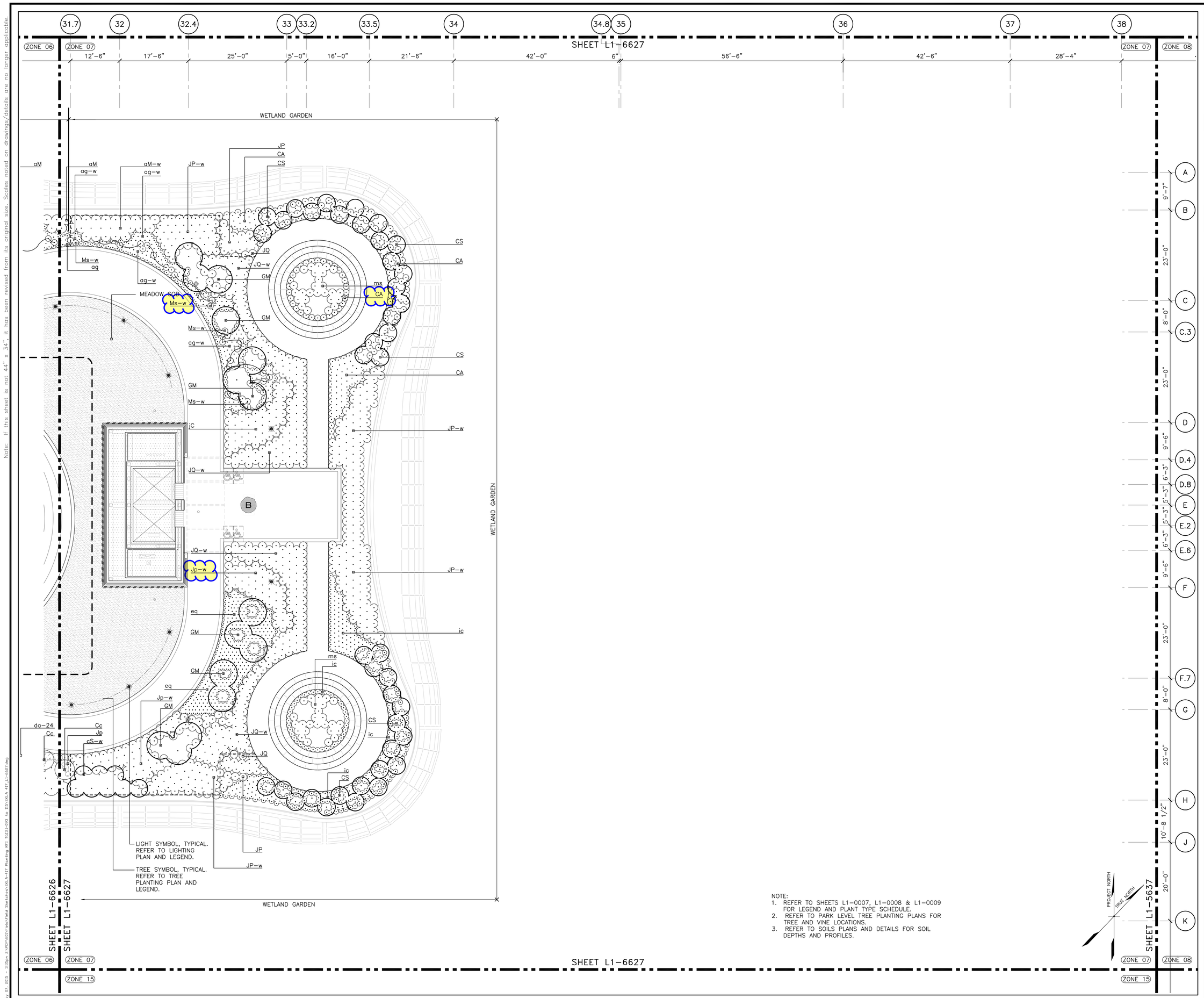
REVISIONS

TRANSBAY TRANSIT CENTER PROGRAM
ZONE 06 UNDERSTORY PLANTING PHASE I

PWP LANDSCAPE ARCHITECTURE

Transbay Transit Center

PRINCIPAL LANDSCAPE ARCHITECT: L. LINDLAY
PROJECT MANAGER: J. ENSPAN
PROJECT MANAGER: J. SASSON
DESIGNED BY: P. WALKER
DRAWN BY: C. CANTER
CHECKED BY: C. JONES
DATE: 12/16/2014
SCALE: 1/8" = 1'-0"
SHEET NUMBER: L1-6626
SEQUENCE NUMBER: 140
REVISION: 1



NOTE:
1. REFER TO SHEETS L1-0007, L1-0008 & L1-0009 FOR LEGEND AND PLANT TYPE SCHEDULE.
2. REFER TO PARK LEVEL TREE PLANTING PLANS FOR TREE AND VINE LOCATIONS.
3. REFER TO SOILS PLANS AND DETAILS FOR SOIL DEPTHS AND PROFILES.

1 / L1-6627 PARK LEVEL ZONE 07 UNDERSTORY PLANTING PLAN
SCALE: 1/8" = 1'-0"

0 4 8 16 24
SCALE IN FEET

Note: If this sheet is not 44" x 34", it has been revised from its original size. Scales noted on drawings/details are no longer applicable.

crystal May 07, 2015 - 3:35pm Z:\PCP\BOS\Field\Field Sketches\SKLA-417 Planting RFI TG31-093 to 115\SKLA 417_L1-6627.dwg

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TRANSBAY JOINT POWERS AUTHORITY
PWP LANDSCAPE ARCHITECTURE

DRAWING TITLE: Response to RFI TG13.1-093 Through TG13.1-115
SKLA-417.7
DRAWN BY: SJP
CHECKED BY: CL
DATE: 05/05/15
SCALE: AS SHOWN
PROJECT NO.

REVISIONS

TRANSBAY TRANSIT CENTER PROGRAM
CENTERPOINT
PHASE I
ZONE 07 UNDERSTORY PLANTING PLAN

LANDSCAPE ARCHITECTURE

Transbay Transit Center

ISSUED FOR CONSTRUCTION