



Agenda
City Council Workshop Meeting
Tuesday, March 22, 2022
Richland City Hall ~ 625 Swift Boulevard
[Zoom](#) - Public Telephone Access: (206) 337-9723 or (253) 215-8782
Meeting ID No. 505 625 7380

This workshop meeting will accommodate virtual and in-person attendance.

Workshops are informal meetings of the Richland City Council that provide an opportunity for City Council to receive and discuss information provided by the City Manager, staff, or other officials. Formal action is not taken in the workshop setting. Please note that public participation is not a component of the City Council workshop setting. Members of the public will be muted upon joining the meeting. The meeting will be broadcast live on CityView Channel 192 and at <https://www.ci.richland.wa.us>.

City Council Workshop - 6:00 p.m.

Agenda Items:

- I. Pavement Management Program Update
 - Pete Rogalsky, Public Works Director
2. Badger South Fire Station Project
 - Tom Huntington, Fire Chief
3. Uptown Shopping Center ADA Improvements
 - Joe Schiessl, Parks & Public Facilities Director

Executive Session:

- I. Executive Session Per RCW 42.30.110(1)(i): Discuss Current or Potential Litigation With Legal Counsel (45 minutes)
 - Heather Kintzley, City Attorney

Adjournment

Richland City Hall is ADA accessible. Requests for sign interpreters, audio equipment, and/or other special services must be received 48 hours prior to the meeting by calling the City Clerk's Office at 509-942-7389.



COUNCIL WORKSHOP COVERSHEET

Council Date: 3/22/2022

Department: Public Works

Core Focus Area 2 - Manage & Maintain Infrastructure & Facilities

Subject:

Pavement Management Program Update

Summary:

The City owns, operates and maintains approximately 300 lane miles of street surface. This system represents the largest single capital asset that the City owns. The City's economy and quality of life depends on the effective maintenance of this asset. Since 2013 the City has used a system maintenance approach based on industry best practices that apply a variety of resurfacing treatments based on a lowest life-cycle cost approach. As is the case with the vast majority of governments the City does not have a single dedicated funding source to support the necessary maintenance of its street system. The funding presently dedicated to maintenance of the City's streets will not sustain acceptable street surfaces. In recent years the City has secured several grants that have contributed to mitigating the decline in street conditions.

Staff will present the Council with a state of the pavement report based on data from our pavement management system. Staff will also discuss its recommended pavement condition standard and some alternatives to dedicating adequate funds to the program.

Attachments:



COUNCIL WORKSHOP COVERSHEET

Council Date: 3/22/2022

Department: Fire & Emergency Services

Core Focus Area 1 - Promote Financial Stability & Operational Effectiveness

Core Focus Area 2 - Manage & Maintain Infrastructure & Facilities

Core Focus Area 6 - Enhance Neighborhood & Community Safety

Subject:

Badger South Fire Station Project

Summary:

Discussion on the timing, funding and project scope for the Badger Mountain South community and emergency response station.

Staff and Council engaged in the initial discussion and planning for the next fire station during 2021, including a SAFER grant application for the 2022 budget year. We were not successful in securing grant funding for 2022, so the decision was made to postpone the project for a year and re-group.

Tonight's workshop item will provide information to council regarding options for this next public safety and municipal services satellite facility.

Attachments:



COUNCIL WORKSHOP COVERSHEET

Council Date: 3/22/2022

Department: Parks & Public Facilities

Core Focus Area 2 - Manage & Maintain Infrastructure & Facilities

Subject:

Uptown Shopping Center ADA Improvements

Summary:

In 2021 the City was made aware of deficiencies at the City-owned parking lot at the Uptown Shopping Center with respect to the Americans with Disabilities Act (ADA). The City acquired property at the shopping center in 1993 and installed improvements in 1994 prior to the establishment of ADA standards in 2010. The City contracted with an ADA subject matter expert architect to develop a project scope and cost estimate. The General Fund Reserve has capacity to fund the work via transfer to the Capital Improvement Fund. A future budget adjustment will be necessary to fund the work.

Attachments:

1. Uptown ADA Cost Estimate 2.15.22 All Phases
2. Uptown ADA Sidewalk Demolition Plan
3. Uptown ADA Sidewalk Construction Plan
4. Uptown ADA Specifications



Preliminary Site Work Cost Est. - PHASE 1

SPEC	ITEM	Qty	Unit	Unit Cost	Section Total	Totals	Remarks
DIV 1 - General Requirements							
015639	Tree Protection & Trimming						
	Tree Protection	31	EA	\$250.00	\$7,750.00	\$7,750.00	
DIV 2 - Existing Conditions							
24116	Structure Demolition				\$4,600.00	\$4,600.00	
	Pylon Sign Demolition	22	EA	\$100.00	\$2,200.00		
	Site Furnishing Removal -	7	EA	\$300.00	\$2,100.00		
	Fence Demolition	40	LF	\$7.50	\$300.00		
DIV 10 - Specialties							
101426	Post & Panel Sign				\$20,000.00	\$20,000.00	
	Posts and Signs	40	EA	\$500.00	\$20,000.00		
Construction Subtotal Div 1 to 12						\$32,350.00	
DIV 31 - Earthwork							
311000	Site Clearing				\$45,061.25	\$45,061.25	
	Sawcutting (Asph/Conc)	1,255	LF	\$3.00	\$3,765.00		
	Striping Removal (Grind)	3,225	LF	\$1.50	\$4,837.50		
	ADA Symbol Removal	20	EA	\$100.00	\$2,000.00		
	Concrete Curb Removal	528	LF	\$10.00	\$5,280.00		
	Concrete Removal	12,131	SF	\$2.25	\$27,294.75		
	Asphalt Removal	996	SF	\$1.50	\$1,494.00		
	Landscape Removal	780	SF	\$0.50	\$390.00		
	Tree Removal	0	EA	\$600.00	\$0.00		
311000	Erosion Control				\$700.00	\$700.00	
	Inlet Protection	14	EA	\$50.00	\$700.00		
312000	Earthwork				\$1,250.00	\$1,250.00	
	Stripping/Grubbing	20	CY	\$25.00	\$500.00		
	Fine	60	SY	\$7.50	\$450.00		
	Topsoil Supply	10	CY	\$30.00	\$300.00		
Construction Subtotal Div 31						\$47,011.25	
DIV 32 - Exterior Improvements							
321216	Asphalt Paving				\$64,812.50	\$64,812.50	
	Standard Section	1,025	SF	\$3.50	\$3,587.50		
	Asphalt Patch at Curb	2,025	SF	\$5.00	\$10,125.00		
	Crack Fill & Slurry	29,200	SF	\$1.75	\$51,100.00		
321313	Concrete Pavement				\$102,756.00	\$102,756.00	
	Standard Slabs	9,707	SF	\$8.00	\$77,656.00		
	ADA Ramps	24	EA	\$200.00	\$4,800.00		
	Standard Curbing	1,015	LF	\$20.00	\$20,300.00		
321723	Pavement Markings				\$10,075.00	\$10,075.00	
	Paint Striping	2,300	LF	\$1.25	\$2,875.00		
	ADA Symbols	21	LF	\$100.00	\$2,100.00		
	ADA Isles	15	EA	\$200.00	\$3,000.00		
	Crosswalks	700	LF	\$3.00	\$2,100.00		

321729	Tactile Warning				\$9,600.00	\$9,600.00	
	Embedded Tiles	24	EA	\$400.00	\$9,600.00		
328400	Planting Irrigation				\$2,000.00	\$2,000.00	
	Irrigation Repair	1	LS	\$2,000.00	\$2,000.00		
329200	Turf and Grasses				\$625.00	\$625.00	
	Topsoil Preparation	500	SF	\$0.25	\$125.00		
	Sod Installation	500	SF	\$1.00	\$500.00		
329300	Plants/Landscape				\$1,591.25	\$1,591.25	
	Bark Mulch	1,750	SF	\$0.50	\$875.00		
	Rock Mulch w/ Fabric	955	SF	\$0.75	\$716.25		
Construction Subtotal Div 32					\$191,459.75		
Construction Total - All Divisions					\$270,821.00		
General Conditions		5.0%			\$13,541.05		
Bonding & Insurance		1.5%			\$4,062.32		
Contractor Overhead and Profit		5.0%			\$13,541.05		
Total Estimated Project Bid Cost					\$301,965.42		
Sales Tax		8.6%			\$25,969.03		
Additional Miscellaneous Costs:							
Advertise & Bid				\$2,500.00	\$2,500.00		
Construction Contingency at %		3.0%			\$9,058.96		
Total Estimated Project Cost					\$339,493.40		



Preliminary Site Work Cost Est. - PHASE 2

SPEC	ITEM	Qty	Unit	Unit Cost	Section Total	Totals	Remarks
DIV 1 - General Requirements							
015639	Tree Protection & Trimming						
	Tree Protection	0	EA	\$250.00	\$0.00	\$0.00	
DIV 2 - Existing Conditions							
24116	Structure Demolition				\$300.00	\$300.00	
	Pylon Sign Demolition	0	EA	\$100.00	\$0.00		
	Site Furnishing Protect - F	1	EA	\$300.00	\$300.00		
	Fence Demolition	0	LF	\$7.50	\$0.00		
DIV 10 - Specialties							
101426	Post & Panel Sign				\$0.00	\$0.00	
	Posts and Signs	0	EA	\$500.00	\$0.00		
Construction Subtotal Div 1 to 12						\$300.00	
DIV 31 - Earthwork							
311000	Site Clearing				\$19,539.75	\$19,539.75	
	Sawcutting (Asph/Conc)	535	LF	\$3.00	\$1,605.00		
	Striping Removal (Grind)	0	LF	\$1.50	\$0.00		
	ADA Symbol Removal	0	EA	\$100.00	\$0.00		
	Concrete Curb Removal	246	LF	\$10.00	\$2,460.00		
	Concrete Removal	5,761	SF	\$2.25	\$12,962.25		
	Asphalt Removal	1,675	SF	\$1.50	\$2,512.50		
	Landscape Removal	0	SF	\$0.50	\$0.00		
	Tree Removal	0	EA	\$600.00	\$0.00		
311000	Erosion Control				\$200.00	\$200.00	
	Inlet Protection	4	EA	\$50.00	\$200.00		
312000	Earthwork				\$0.00	\$0.00	
	Stripping/Grubbing	0	CY	\$25.00	\$0.00		
	Fine	0	SY	\$7.50	\$0.00		
	Topsoil Supply	0	CY	\$30.00	\$0.00		
Construction Subtotal Div 31						\$19,739.75	
DIV 32 - Exterior Improvements							
321216	Asphalt Paving				\$5,862.50	\$5,862.50	
	Standard Section	1,675	SF	\$3.50	\$5,862.50		
	Asphalt Patch at Curb	0	SF	\$5.00	\$0.00		
	Crack Fill & Slurry	0	SF	\$1.75	\$0.00		
321313	Concrete Pavement				\$46,088.00	\$46,088.00	
	Standard Slabs	5,761	SF	\$8.00	\$46,088.00		
	ADA Ramps	0	EA	\$200.00	\$0.00		
	Standard Curbing	0	LF	\$20.00	\$0.00		
321723	Pavement Markings				\$0.00	\$0.00	
	Paint Striping	0	LF	\$1.25	\$0.00		
	ADA Symbols	0	LF	\$100.00	\$0.00		
	ADA Isles	0	EA	\$200.00	\$0.00		
	Crosswalks	0	LF	\$3.00	\$0.00		

321729	Tactile Warning				\$0.00	\$0.00	
	Embedded Tiles	0	EA	\$400.00	\$0.00		
328400	Planting Irrigation				\$0.00	\$0.00	
	Irrigation Repair	0	LS	\$2,500.00	\$0.00		
329200	Turf and Grasses				\$0.00	\$0.00	
	Topsoil Preparation	0	SF	\$0.25	\$0.00		
	Sod Installation	0	SF	\$1.00	\$0.00		
329300	Plants/Landscape				\$258.75	\$258.75	
	Bark Mulch	0	SF	\$0.50	\$0.00		
	Rock Mulch w/ Fabric	345	SF	\$0.75	\$258.75		
Construction Subtotal Div 32					\$52,209.25		
Construction Total - All Divisions					\$72,249.00		
General Conditions		5.0%				\$3,612.45	
Bonding & Insurance		1.5%				\$1,083.74	
Contractor Overhead and Profit		5.0%				\$3,612.45	
Total Estimated Project Bid Cost					\$80,557.64		
Sales Tax		8.6%				\$6,927.96	
Additional Miscellaneous Costs:							
Advertise & Bid				\$2,500.00		\$2,500.00	
Construction Contingency at %		3.0%				\$2,416.73	
Total Estimated Project Cost					\$92,402.32		



Preliminary Site Work Cost Est. - PHASE 3

SPEC	ITEM	Qty	Unit	Unit Cost	Section Total	Totals	Remarks
DIV 1 - General Requirements							
015639	Tree Protection & Trimming						
	Tree Protection	4	EA	\$250.00	\$1,000.00	\$1,000.00	
DIV 2 - Existing Conditions							
24116	Structure Demolition				\$600.00	\$600.00	
	Pylon Sign Demolition	0	EA	\$100.00	\$0.00		
	Site Furnishing Removal -	2	EA	\$300.00	\$600.00		
	Fence Demolition	0	LF	\$7.50	\$0.00		
DIV 10 - Specialties							
101426	Post & Panel Sign				\$0.00	\$0.00	
	Posts and Signs	0	EA	\$500.00	\$0.00		
Construction Subtotal Div 1 to 12						\$1,600.00	
DIV 31 - Earthwork							
311000	Site Clearing				\$9,967.75	\$9,967.75	
	Sawcutting (Asph/Conc)	1,632	LF	\$3.00	\$4,896.00		
	Striping Removal (Grind)	0	LF	\$1.50	\$0.00		
	ADA Symbol Removal	0	EA	\$100.00	\$0.00		
	Concrete Curb Removal	26	LF	\$10.00	\$260.00		
	Concrete Removal	1,543	SF	\$2.25	\$3,471.75		
	Asphalt Removal	20	SF	\$1.50	\$30.00		
	Landscape Removal	220	SF	\$0.50	\$110.00		
	Tree Removal	2	EA	\$600.00	\$1,200.00		
311000	Erosion Control				\$200.00	\$200.00	
	Inlet Protection	4	EA	\$50.00	\$200.00		
312000	Earthwork				\$627.50	\$627.50	
	Stripping/Grubbing	8	CY	\$25.00	\$200.00		
	Fine	25	SY	\$7.50	\$187.50		
	Topsoil Supply	8	CY	\$30.00	\$240.00		
Construction Subtotal Div 31						\$10,795.25	
DIV 32 - Exterior Improvements							
321216	Asphalt Paving				\$125.00	\$125.00	
	Standard Section	0	SF	\$3.50	\$0.00		
	Asphalt Patch at Curb	25	SF	\$5.00	\$125.00		
	Crack Fill & Slurry	0	SF	\$1.75	\$0.00		
321313	Concrete Pavement				\$14,556.00	\$14,556.00	
	Standard Slabs	1,682	SF	\$8.00	\$13,456.00		
	ADA Ramps	2	EA	\$200.00	\$400.00		
	Standard Curbing	35	LF	\$20.00	\$700.00		
321723	Pavement Markings				\$675.00	\$675.00	
	Paint Striping	0	LF	\$1.25	\$0.00		
	ADA Symbols	0	LF	\$100.00	\$0.00		
	ADA Isles	0	EA	\$200.00	\$0.00		
	Crosswalks	225	LF	\$3.00	\$675.00		

321729	Tactile Warning				\$800.00	\$800.00	
	Embedded Tiles	2	EA	\$400.00	\$800.00		
328400	Planting Irrigation				\$500.00	\$500.00	
	Irrigation Repair	1	LS	\$500.00	\$500.00		
329200	Turf and Grasses				\$250.00	\$250.00	
	Topsoil Preparation	200	SF	\$0.25	\$50.00		
	Sod Installation	200	SF	\$1.00	\$200.00		
329300	Plants/Landscape				\$0.00	\$0.00	
	Bark Mulch	0	SF	\$0.50	\$0.00		
	Rock Mulch w/ Fabric	0	SF	\$0.75	\$0.00		
Construction Subtotal Div 32					\$16,906.00		
Construction Total - All Divisions					\$29,301.25		
General Conditions		5.0%				\$1,465.06	
Bonding & Insurance		1.5%				\$439.52	
Contractor Overhead and Profit		5.0%				\$1,465.06	
Total Estimated Project Bid Cost					\$32,670.89		
Sales Tax		8.6%				\$2,809.70	
Additional Miscellaneous Costs:							
Advertise & Bid				\$2,500.00		\$2,500.00	
Construction Contingency at %		3.0%				\$980.13	
Total Estimated Project Cost					\$38,960.72		

CITY OF RICHLAND UPTOWN PARKING LOT ADA IMPROVEMENTS

RICHLAND, WA 99354



VICINITY MAP - RICHLAND UPTOWN MALL

RICHLAND UPTOWN MALL

Index of Drawings

Topographic Survey

- | | |
|--------|-------------------------------------|
| 1 OF 9 | OVERALL TOPOGRAPHIC SURVEY |
| 2 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT - NW |
| 3 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT |
| 4 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT |
| 5 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT - SW |
| 6 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT - SE |
| 7 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT |
| 8 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT |
| 9 OF 9 | TOPOGRAPHIC SURVEY ENLARGEMENT - NE |

Site Construction Documents

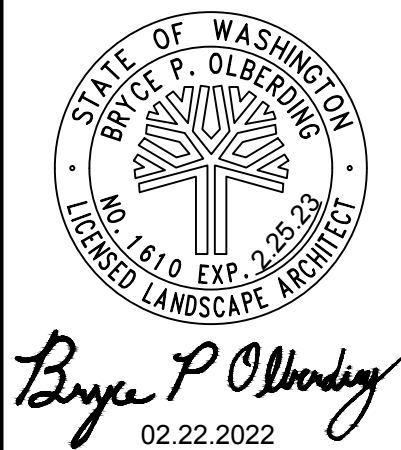
- | | |
|-------|--------------------------|
| L1.00 | COVER SHEET |
| L1.10 | OVERALL DEMOLITION PLAN |
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| L1.12 | DEMOLITION PLAN - AREA 2 |
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| L1.16 | DEMOLITION PLAN - AREA 6 |
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| L1.38 | GRADING PLAN - AREA 8 |
| L1.40 | SITE DETAILS |
| L1.41 | SITE DETAILS |

GENERAL NOTES

1. LIMITS OF WORK ARE IDENTIFIED ON PLANS.

SET # BID SET

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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
COVER SHEET

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.00



LEGEND

- EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80' CLEARANCE ABOVE WALKING PATH (TYP.)
- EXISTING TREE TO BE REMOVED (TYP.)
- SHEET BREAKLINES
- CONSTRUCTION LIMITS
- SAWCUT LINE
- CURB TO BE REMOVED
- FENCE TO BE REMOVED

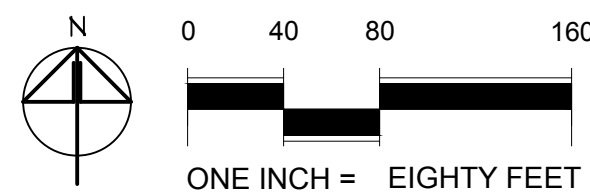
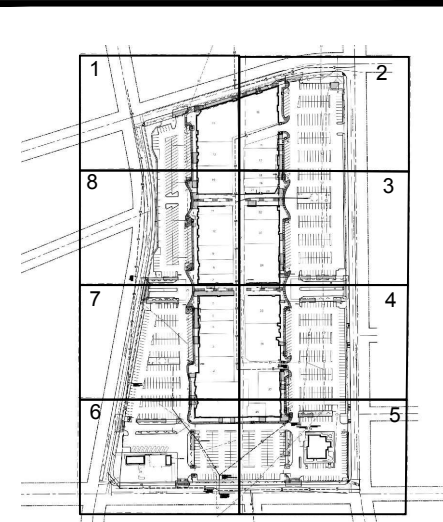
GENERAL NOTES

- NOT ALL ITEMS TO BE DEMOLISHED ARE NOTED. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL DOCUMENTS AND EXISTING CONDITIONS. COORDINATE ALL DEMOLITION, GRADING, AND EARTHWORK OPERATIONS TO ACHIEVE FINISHED PRODUCT.
- CONTRACTOR SHALL REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL REQUIREMENTS.
- LIMITS OF WORK ARE IDENTIFIED ON PLANS.
- IN AREAS WHERE DEMOLITION WORK WILL OCCUR ON OR ADJACENT TO PROTECTED TREES, REFER TO TREE PROTECTION DETAIL AND PROTECT TO THE GREATEST EXTENT POSSIBLE.
- CONTRACTOR TO INSURE THAT ALL TURF AND LANDSCAPE AREAS WITHIN CONSTRUCTION LIMITS TO REMAIN ARE WATERED AND CARED FOR. REFER TO SPECS FOR ADDITIONAL INFORMATION.
- COORDINATE WITH LAYOUT PLAN FOR DIMENSIONS & CONSTRUCTION PRIORITY.
- REMOVE AND SAVE ANY MISCELLANEOUS SITE FURNISHINGS NOT CALLED OUT WITHIN LIMITS OF WORK AND NEW IMPROVEMENTS (I.E NEWSPAPER RACKS, ETC.) REINSTALL PRIOR TO COMPLETION OF PROJECT.

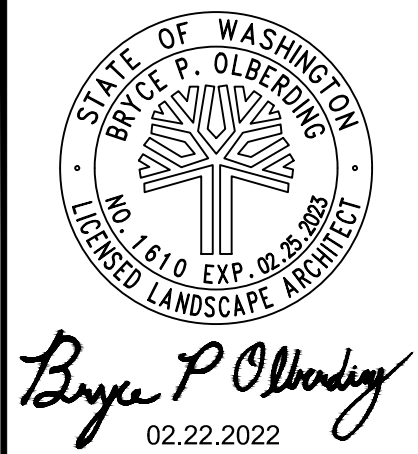
DEMOLITION KEYED NOTES

- | SYMBOL | Demolition DESCRIPTION |
|--------|---|
| (D-01) | REMOVE CURB. SAW CUT ASPHALT APPROXIMATELY 18" FROM FACE OF CURB FOR REMOVAL. |
| (D-02) | REMOVE EXISTING SIGN. SALVAGE EXISTING PANEL FOR REUSE. |
| (D-03) | EXISTING TREE TO BE REMOVED IN ITS ENTIRETY - PRESERVE / REPAIR ANY EXISTING IRRIGATION ENCOUNTERED. (TYP.) |
| (D-04) | REMOVE PATIO FENCING - RETURN TO BUSINESS OWNER FOR POTENTIAL SALVAGE |
| (D-05) | REMOVE BENCH - RETURN TO OWNER FOR POTENTIAL SALVAGE |
| (D-06) | REMOVE EXISTING PLANTERS - RETURN TO OWNER FOR POTENTIAL SALVAGE |
| (D-07) | SAVE AND PROTECT EXISTING BOLLARDS (TYP.) |
| (D-08) | REMOVE EXISTING TRASH RECEPTACLE - RETURN TO OWNER FOR POTENTIAL SALVAGE |
| (D-09) | REMOVE EXISTING BIKE RACK |
| (D-10) | SAVE AND PROTECT EXISTING FLAGPOLE |
| (D-11) | SAVE AND PROTECT EXISTING STREET LIGHT (TYP.) |
| (D-12) | SAVE AND PROTECT EXISTING TREES PER DETAIL (TYP.) |
| (D-13) | SAVE AND PROTECT EXISTING UTILITIES (TYP.) |
| (D-14) | SAVE AND PROTECT EXISTING TRASH RECEPTACLE |
| (D-15) | SAVE AND PROTECT EXISTING BIKE RACK |
| (D-16) | SAVE AND PROTECT MONUMENT/SIGN |
| (D-17) | SAVE AND PROTECT EXISTING FOUNTAIN AND ASSOCIATED PLUMBING |
| (D-18) | SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION |
| (D-19) | PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.) |
| (D-20) | SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE |

- | SYMBOL | Demolition DESCRIPTION |
|------------------------|---|
| [Hatched Box] | APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.) |
| [Diagonal Hatched Box] | EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS. |
| [Cross-hatched Box] | APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL |
- NOTE: HATCH SCALED TO 1" = 20' TO READ ON 20 SCALE SHEETS.



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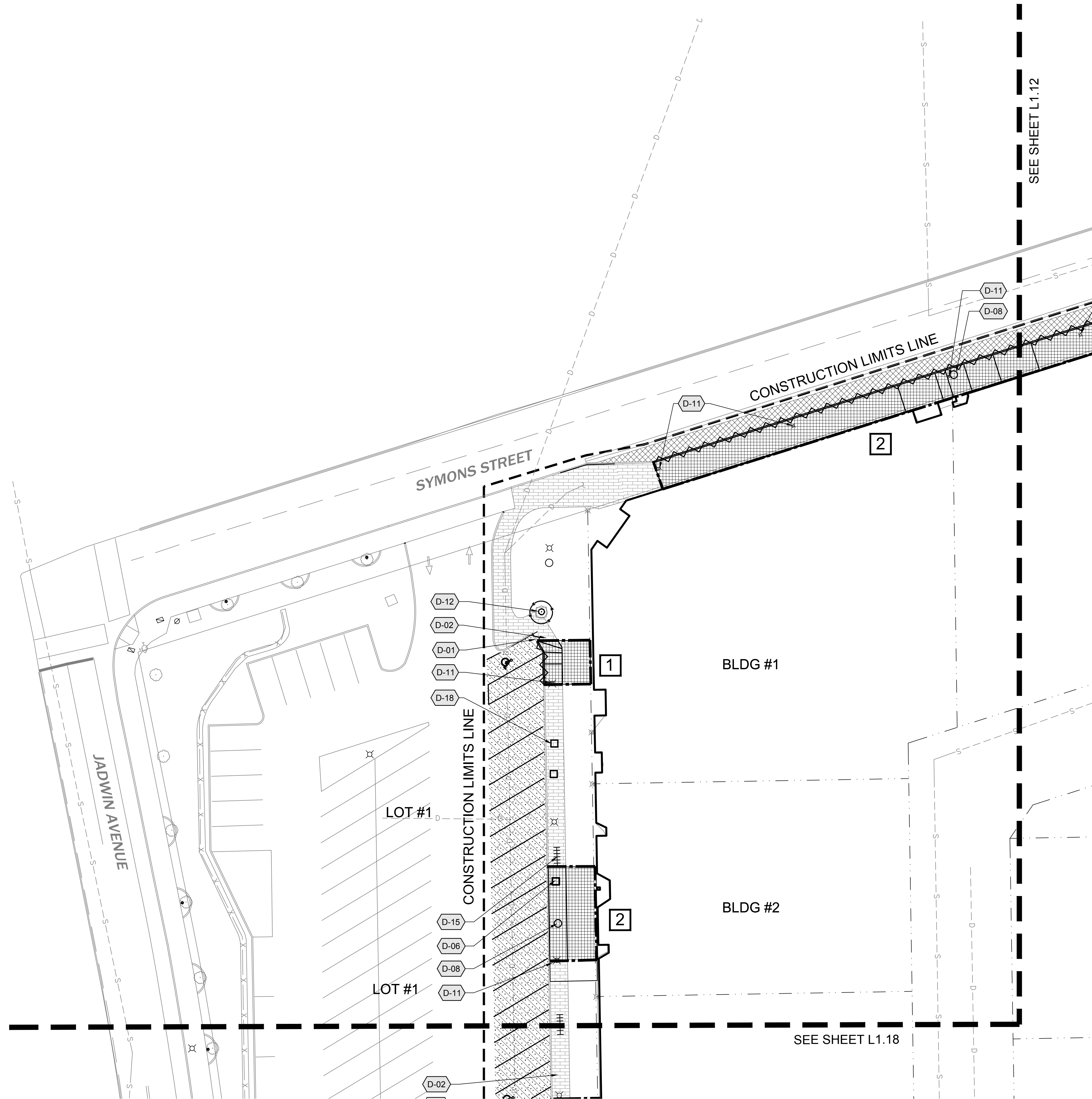
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(509) 360-9853-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
OVERALL DEMOLITION PLAN

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.10



LEGEND

PHASING:

- 1 - FIRST PHASE
- 2 - SECOND PHASE
- 3 - THIRD PHASE

1

2

3

GENERAL NOTES

- NOT ALL ITEMS TO BE DEMOLISHED ARE NOTED. CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL DOCUMENTS AND EXISTING CONDITIONS. COORDINATE ALL DEMOLITION, GRADING, AND EARTHWORK OPERATIONS TO ACHIEVE FINISHED PRODUCT.
- CONTRACTOR SHALL REFER TO SPECIFICATIONS AND DETAILS FOR ADDITIONAL REQUIREMENTS.
- LIMITS OF WORK ARE IDENTIFIED ON PLANS.
- IN AREAS WHERE DEMOLITION WORK WILL OCCUR ON OR ADJACENT TO PROTECTED TREES, REFER TO TREE PROTECTION DETAIL AND PROTECT TO THE GREATEST EXTENT POSSIBLE.
- CONTRACTOR TO INSURE THAT ALL TURF AND LANDSCAPE AREAS WITHIN CONSTRUCTION LIMITS TO REMAIN ARE WATERED AND CARED FOR. REFER TO SPECS FOR ADDITIONAL INFORMATION.
- REFER TO ELECTRICAL FOR SITE ELECTRICAL DEMOLITION.
- REMOVE AND SAVE ANY MISCELLANEOUS SITE FURNISHINGS NOT CALLED OUT WITHIN LIMITS OF WORK AND NEW IMPROVEMENTS (I.E. NEWSPAPER RACKS, ETC.) REINSTALL PRIOR TO COMPLETION OF PROJECT.

DEMOLITION KEYED NOTES

SYMBOL	Demolition DESCRIPTION
	REMOVE CURB. SAW CUT ASPHALT APPROXIMATELY 18" FROM FACE OF CURB FOR REMOVAL.
	REMOVE EXISTING SIGN. SALVAGE EXISTING PANEL FOR REUSE.
	EXISTING TREE TO BE REMOVED IN ITS ENTIRETY - PRESERVE / REPAIR ANY EXISTING IRRIGATION ENCOUNTERED. (TYP.)
	REMOVE PATIO FENCING - RETURN TO BUSINESS OWNER FOR POTENTIAL SALVAGE
	REMOVE BENCH - RETURN TO OWNER FOR POTENTIAL SALVAGE
	REMOVE EXISTING PLANTERS - RETURN TO OWNER FOR POTENTIAL SALVAGE
	SAVE AND PROTECT EXISTING BOLLARDS (TYP.)
	REMOVE EXISTING TRASH RECEPTACLE - RETURN TO OWNER FOR POTENTIAL SALVAGE
	REMOVE EXISTING BIKE RACK
	SAVE AND PROTECT EXISTING FLAGPOLE
	SAVE AND PROTECT EXISTING STREET LIGHT (TYP.)
	SAVE AND PROTECT EXISTING TREES PER DETAIL (TYP.)
	SAVE AND PROTECT EXISTING UTILITIES (TYP.)
	SAVE AND PROTECT EXISTING TRASH RECEPTACLE
	SAVE AND PROTECT EXISTING BIKE RACK
	SAVE AND PROTECT MONUMENT/SIGN
	SAVE AND PROTECT EXISTING FOUNTAIN AND ASSOCIATED PLUMBING
	SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION
	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE
SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP

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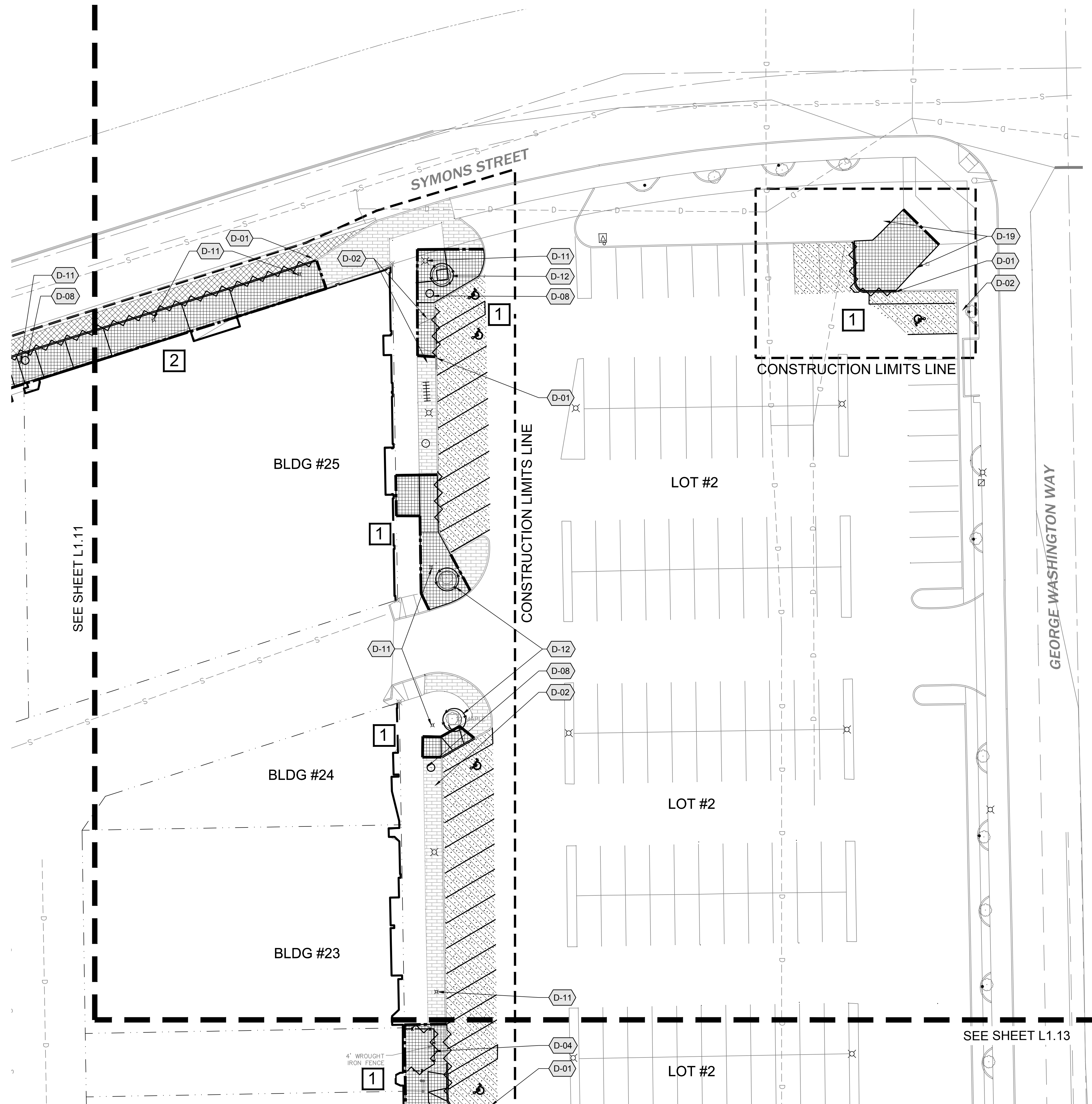
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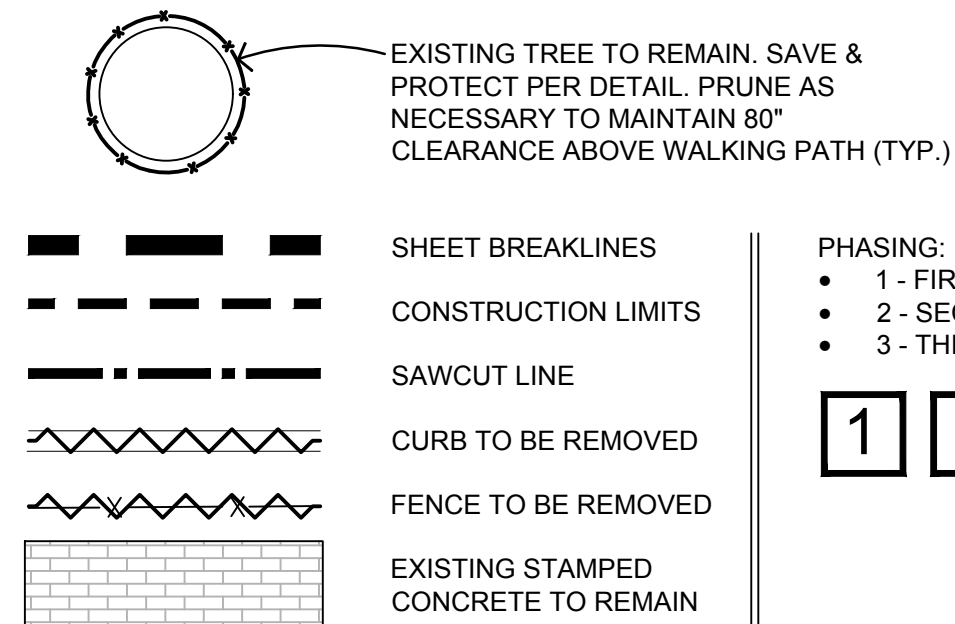
CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 1

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.11



LEGEND



- PHASING:
- 1 - FIRST PHASE
 - 2 - SECOND PHASE
 - 3 - THIRD PHASE

1 2 3

GENERAL NOTES

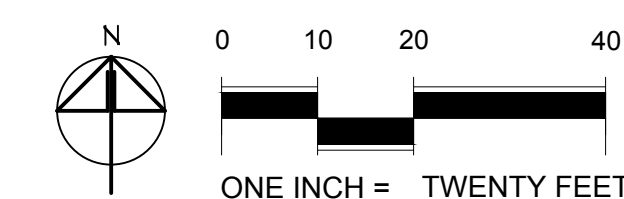
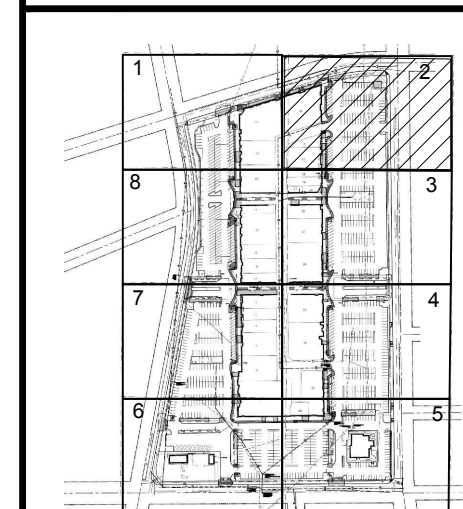
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DEMOLITION KEYED NOTES

SYMBOL	Demolition DESCRIPTION
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D-09	REMOVE EXISTING BIKE RACK
D-10	SAVE AND PROTECT EXISTING FLAGPOLE
D-11	SAVE AND PROTECT EXISTING STREET LIGHT (TYP.)
D-12	SAVE AND PROTECT EXISTING TREES PER DETAIL (TYP.)
D-13	SAVE AND PROTECT EXISTING UTILITIES (TYP.)
D-14	SAVE AND PROTECT EXISTING TRASH RECEPTACLE
D-15	SAVE AND PROTECT EXISTING BIKE RACK
D-16	SAVE AND PROTECT MONUMENT/SIGN
D-17	SAVE AND PROTECT EXISTING FOUNTAIN AND ASSOCIATED PLUMBING
D-18	SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION
D-19	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
D-20	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE

SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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Bryce P. O'Leary
02.22.2022



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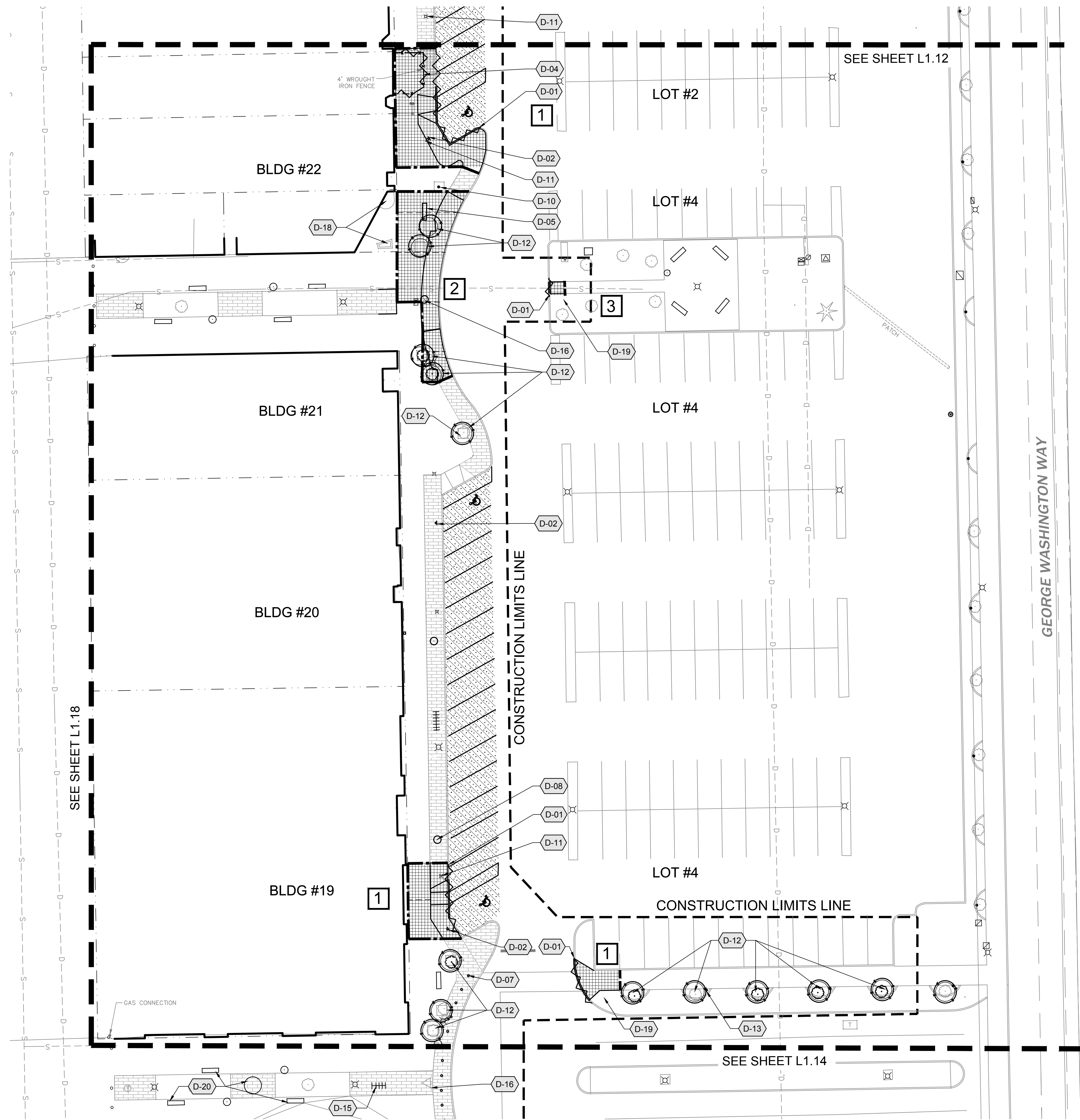
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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 2

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.12



LEGEND

PHASING:

- 1 - FIRST PHASE
- 2 - SECOND PHASE
- 3 - THIRD PHASE

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2

3

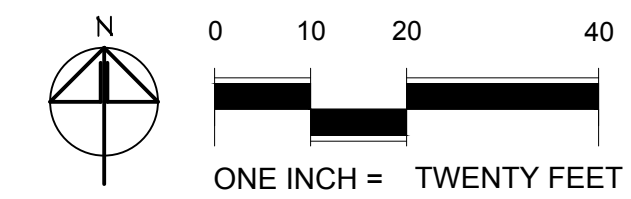
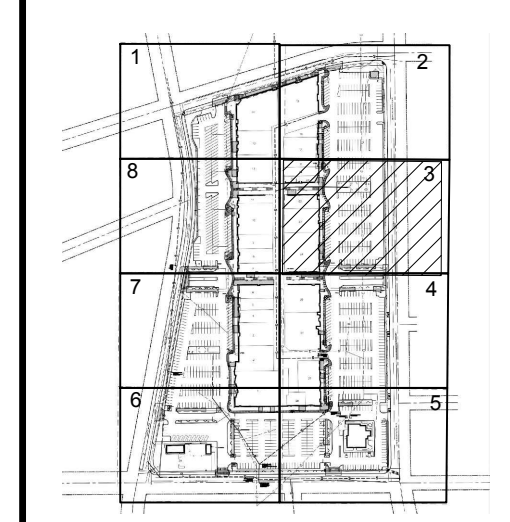
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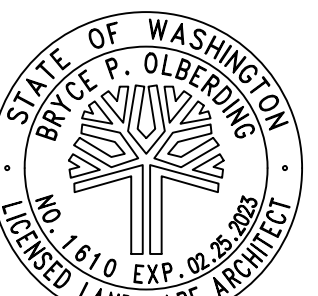
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	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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02.22.2022



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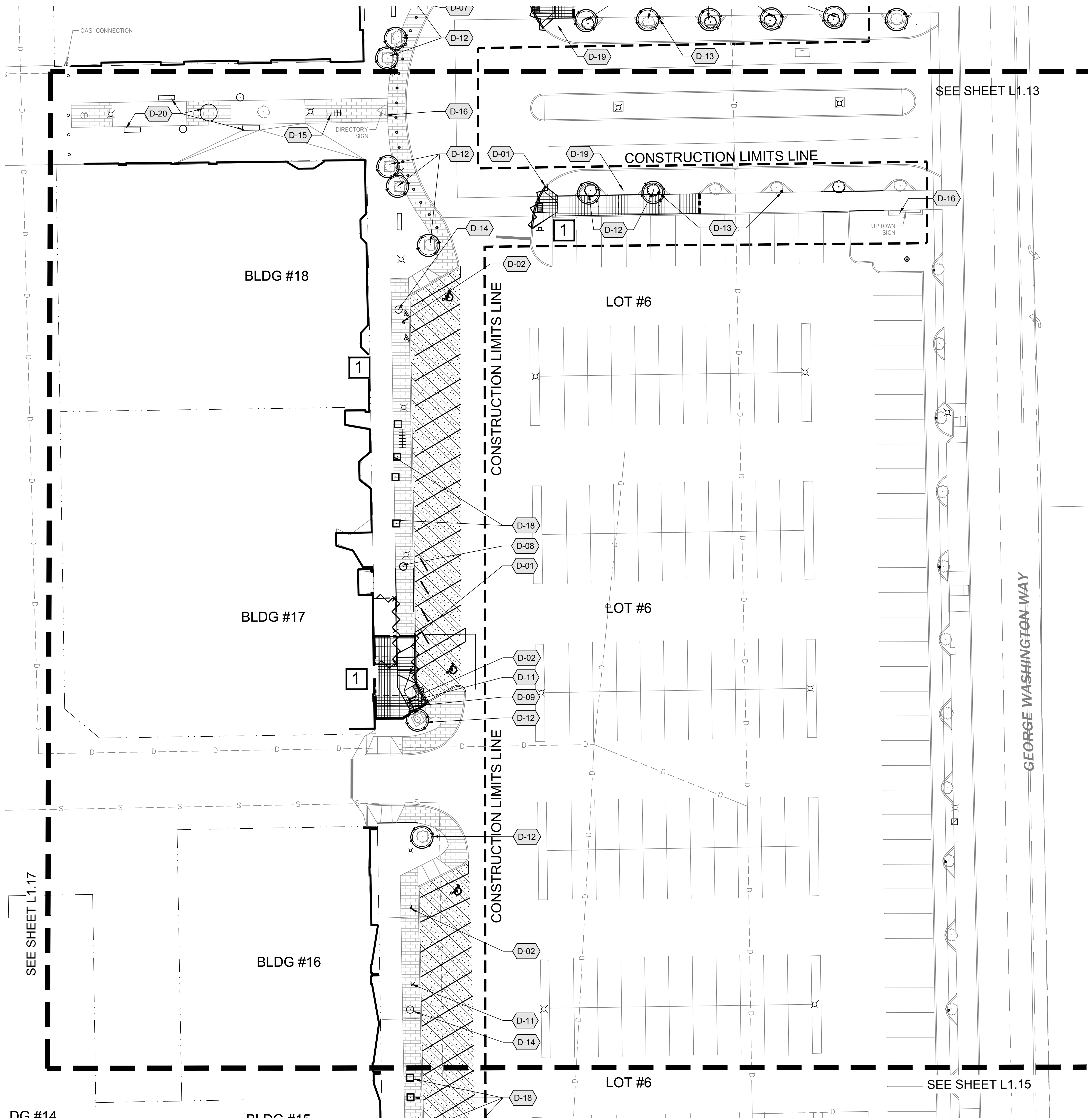
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(509) 360-9953-9402

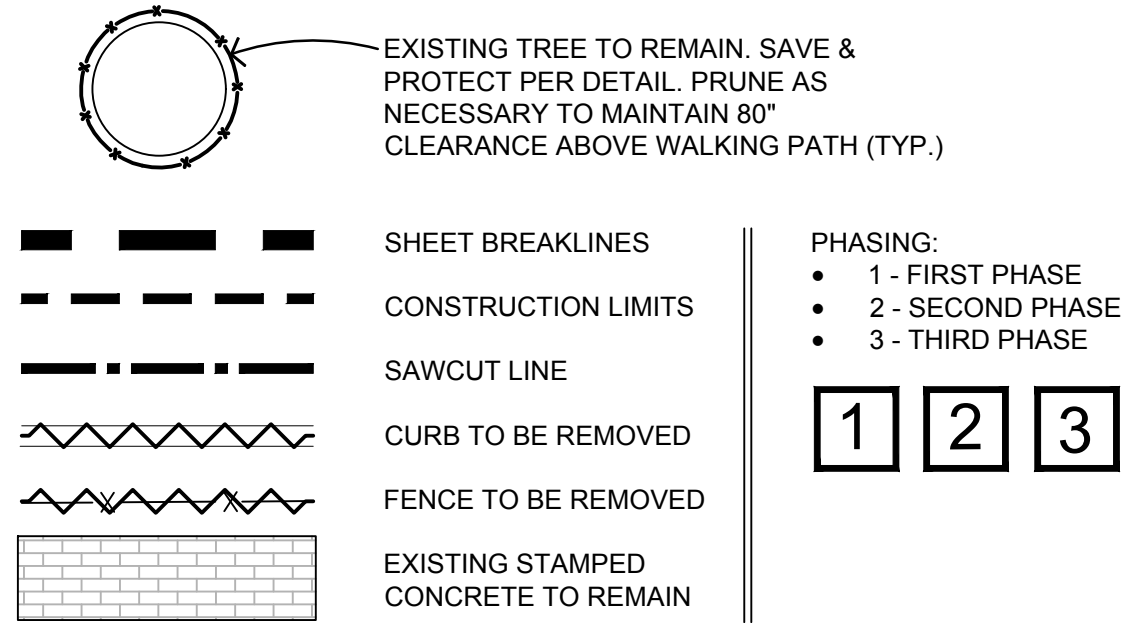
CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 3

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.13



LEGEND



GENERAL NOTES

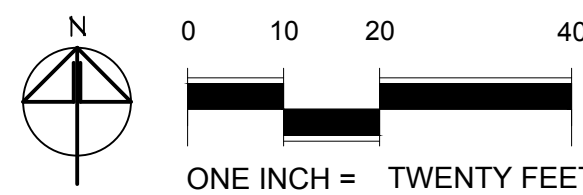
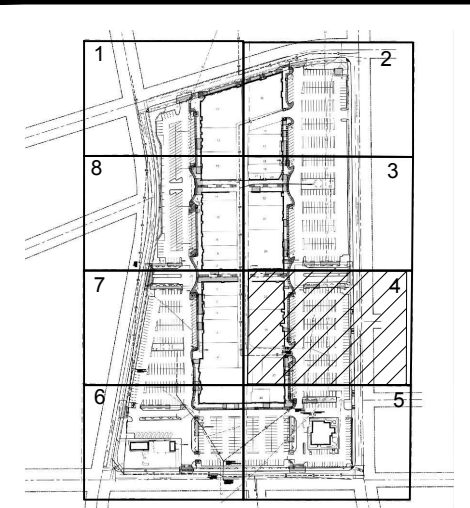
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DEMOLITION KEYED NOTES

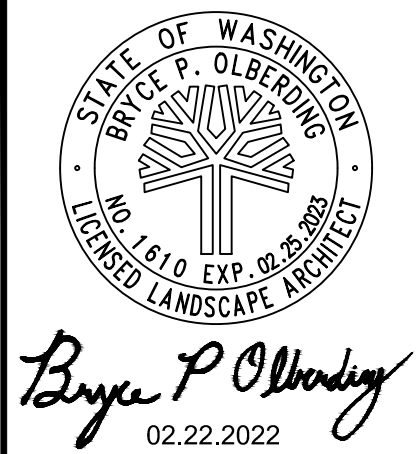
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D-19	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
D-20	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE

SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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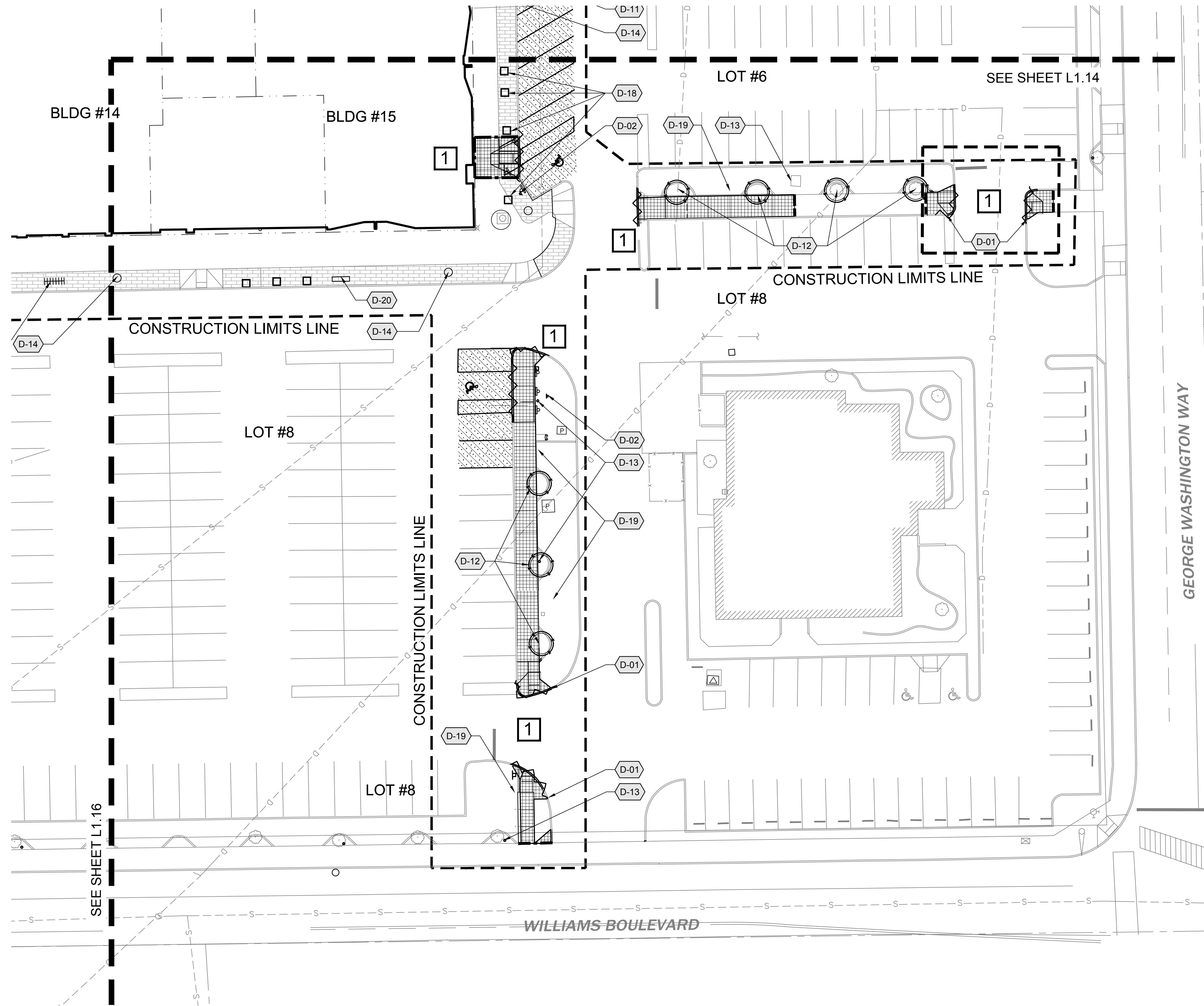


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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 4

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.14



LEGEND

PHASING:

- 1 - FIRST PHASE
- 2 - SECOND PHASE
- 3 - THIRD PHASE

1

2

3

GENERAL NOTES

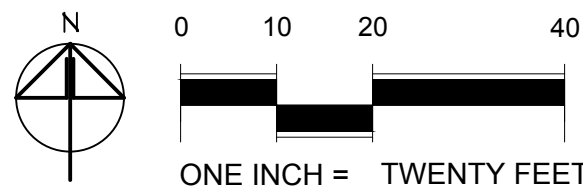
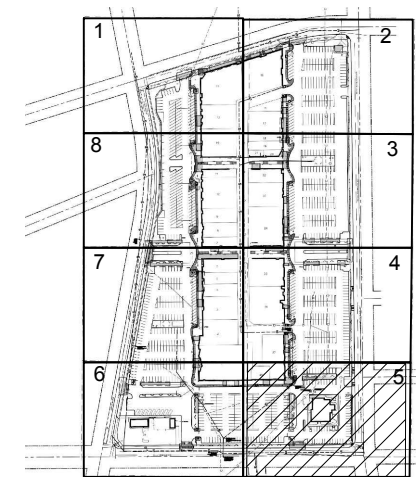
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DEMOLITION KEYED NOTES

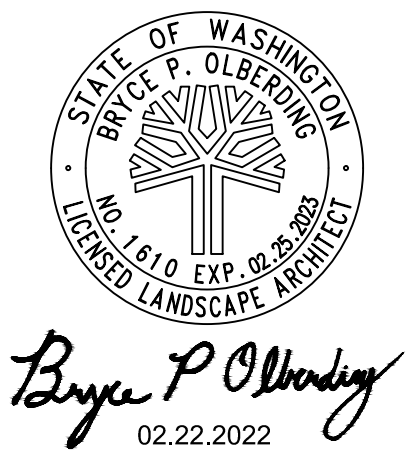
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SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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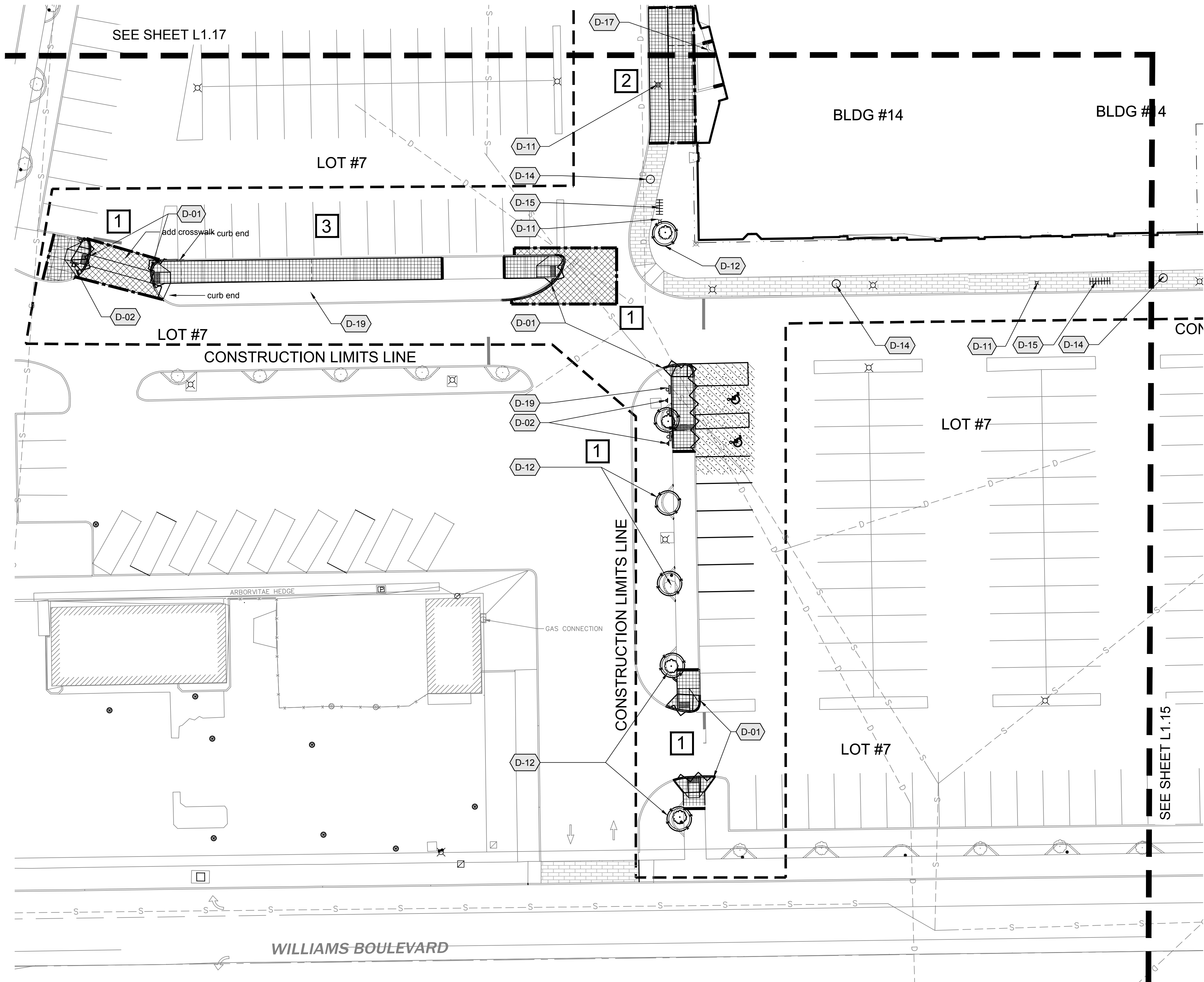
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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 5

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.15



LEGEND

PHASING:

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- 2 - SECOND PHASE
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1

2

3

GENERAL NOTES

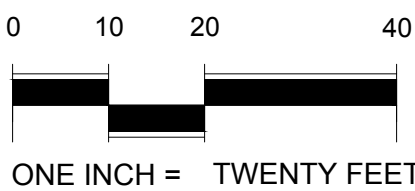
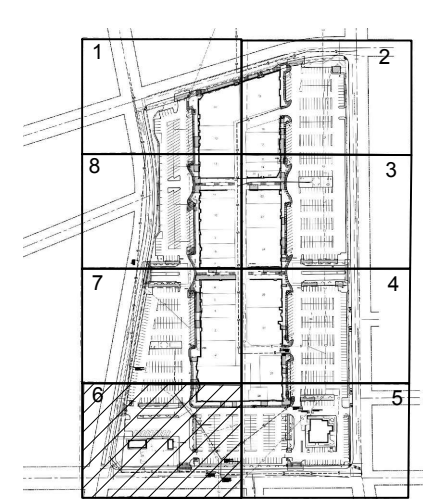
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- LIMITS OF WORK ARE IDENTIFIED ON PLANS.
- IN AREAS WHERE DEMOLITION WORK WILL OCCUR ON OR ADJACENT TO PROTECTED TREES, REFER TO TREE PROTECTION DETAIL AND PROTECT TO THE GREATEST EXTENT POSSIBLE.
- CONTRACTOR TO INSURE THAT ALL TURF AND LANDSCAPE AREAS WITHIN CONSTRUCTION LIMITS TO REMAIN ARE WATERED AND CARED FOR. REFER TO SPECS FOR ADDITIONAL INFORMATION.
- REFER TO ELECTRICAL FOR SITE ELECTRICAL DEMOLITION.
- REMOVE AND SAVE ANY MISCELLANEOUS SITE FURNISHINGS NOT CALLED OUT WITHIN LIMITS OF WORK AND NEW IMPROVEMENTS (I.E NEWSPAPER RACKS, ETC.) REINSTALL PRIOR TO COMPLETION OF PROJECT.

DEMOLITION KEYED NOTES

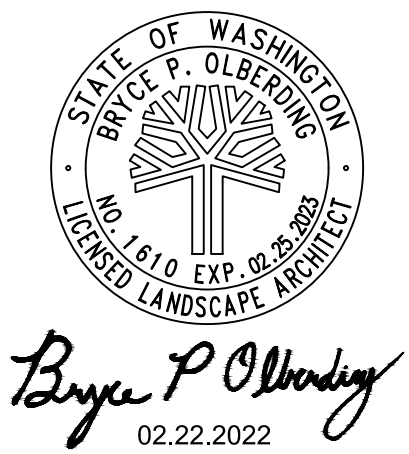
SYMBOL	Demolition DESCRIPTION
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	REMOVE EXISTING SIGN. SALVAGE EXISTING PANEL FOR REUSE.
	EXISTING TREE TO BE REMOVED IN ITS ENTIRETY - PRESERVE / REPAIR ANY EXISTING IRRIGATION ENCOUNTERED. (TYP.)
	REMOVE PATIO FENCING - RETURN TO BUSINESS OWNER FOR POTENTIAL SALVAGE
	REMOVE BENCH - RETURN TO OWNER FOR POTENTIAL SALVAGE
	REMOVE EXISTING PLANTERS - RETURN TO OWNER FOR POTENTIAL SALVAGE
	SAVE AND PROTECT EXISTING BOLLARDS (TYP.)
	REMOVE EXISTING TRASH RECEPTACLE - RETURN TO OWNER FOR POTENTIAL SALVAGE
	REMOVE EXISTING BIKE RACK
	SAVE AND PROTECT EXISTING FLAGPOLE
	SAVE AND PROTECT EXISTING STREET LIGHT (TYP.)
	SAVE AND PROTECT EXISTING TREES PER DETAIL (TYP.)
	SAVE AND PROTECT EXISTING UTILITIES (TYP.)
	SAVE AND PROTECT EXISTING TRASH RECEPTACLE
	SAVE AND PROTECT EXISTING BIKE RACK
	SAVE AND PROTECT MONUMENT/SIGN
	SAVE AND PROTECT EXISTING FOUNTAIN AND ASSOCIATED PLUMBING
	SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION
	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE

SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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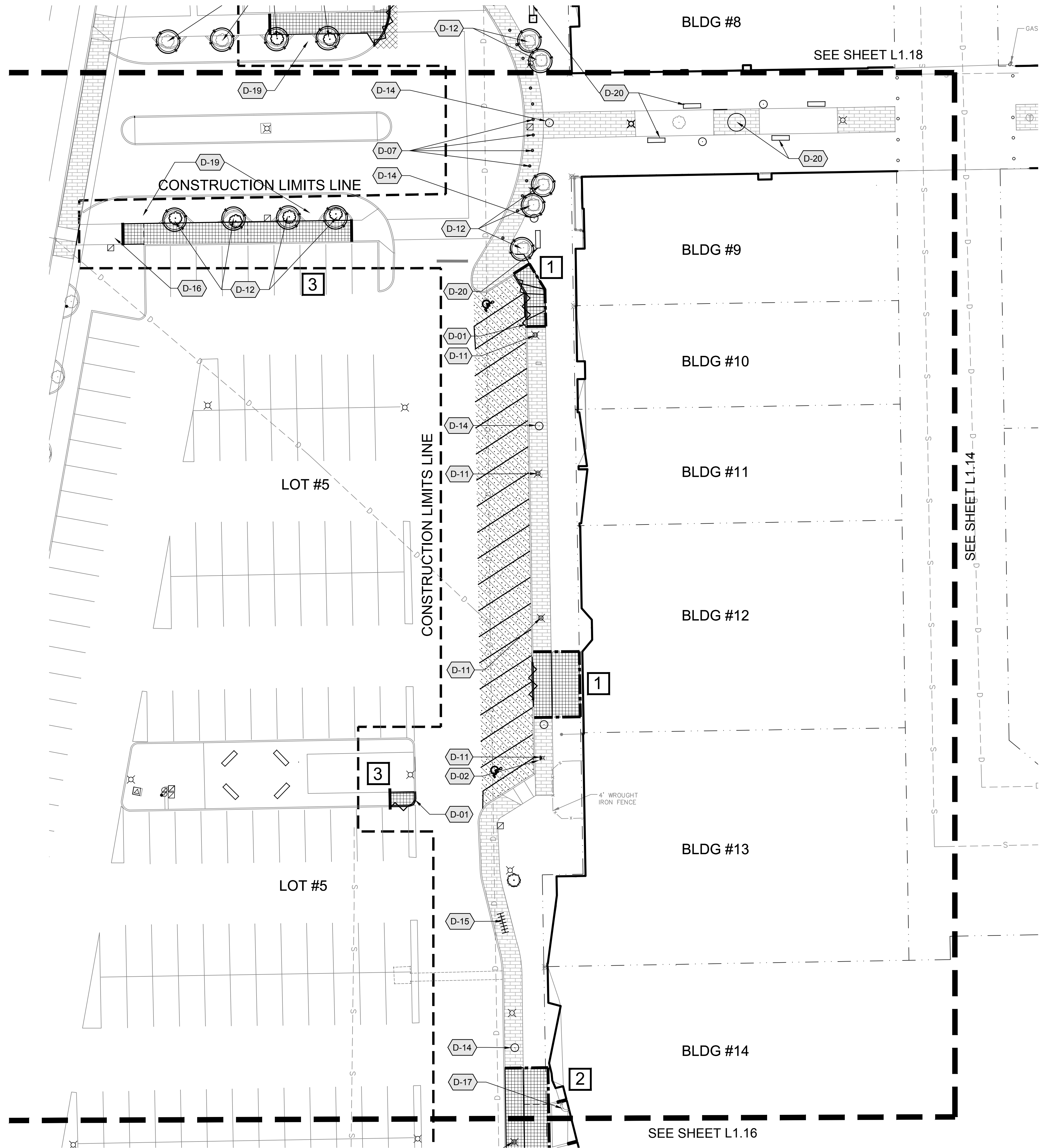
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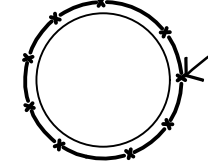
CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 6

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.16



LEGEND



EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 8' CLEARANCE ABOVE WALKING PATH (TYP.)



SHEET BREAKLINES



CONSTRUCTION LIMITS



SAWCUT LINE



CURB TO BE REMOVED



FENCE TO BE REMOVED

REPAIR PRIORITY:

- 1 - PHASE 1
- 2 - PHASE 2
- 3 - PHASE 3

1

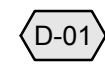
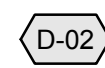
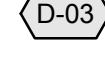
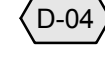
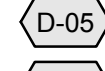
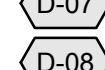
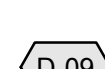
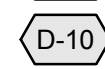
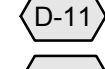
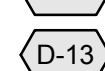
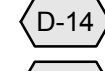
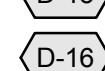
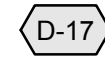
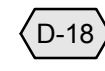
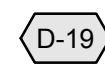
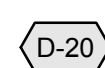
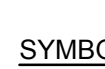
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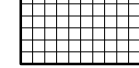
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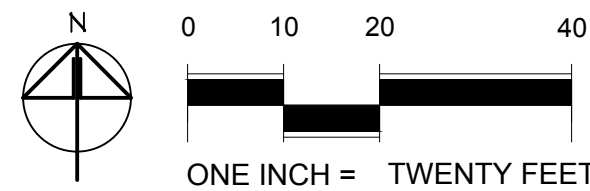
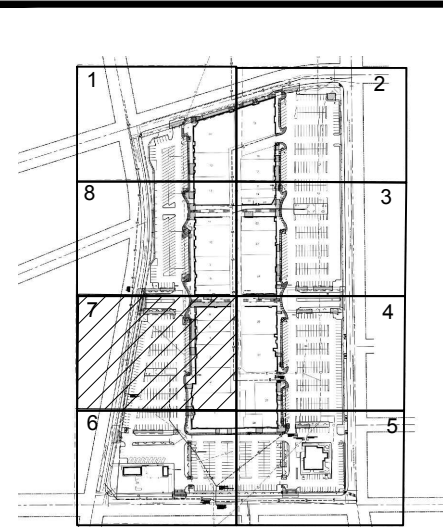
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DEMOLITION KEYED NOTES

SYMBOL	Demolition DESCRIPTION
	REMOVE CURB. SAW CUT ASPHALT APPROXIMATELY 18" FROM FACE OF CURB FOR REMOVAL.
	REMOVE EXISTING SIGN. SALVAGE EXISTING PANEL FOR REUSE.
	EXISTING TREE TO BE REMOVED IN ITS ENTIRETY - PRESERVE / REPAIR ANY EXISTING IRRIGATION ENCOUNTERED. (TYP.)
	REMOVE PATIO FENCING - RETURN TO BUSINESS OWNER FOR POTENTIAL SALVAGE
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	SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION
	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE

SYMBOL	Demolition DESCRIPTION
	APPROXIMATE AREA OF CONCRETE / BASE COURSE REMOVAL (TYP.)
	EXTENTS FOR SEALCOAT AND RESTRIPE EXISTING ASPHALT PARKING LOT. GRIND OFF OR REMOVE ALL EXISTING PARKING STRIPING PRIOR TO SEALCOATING - SEE SPECS.
	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL



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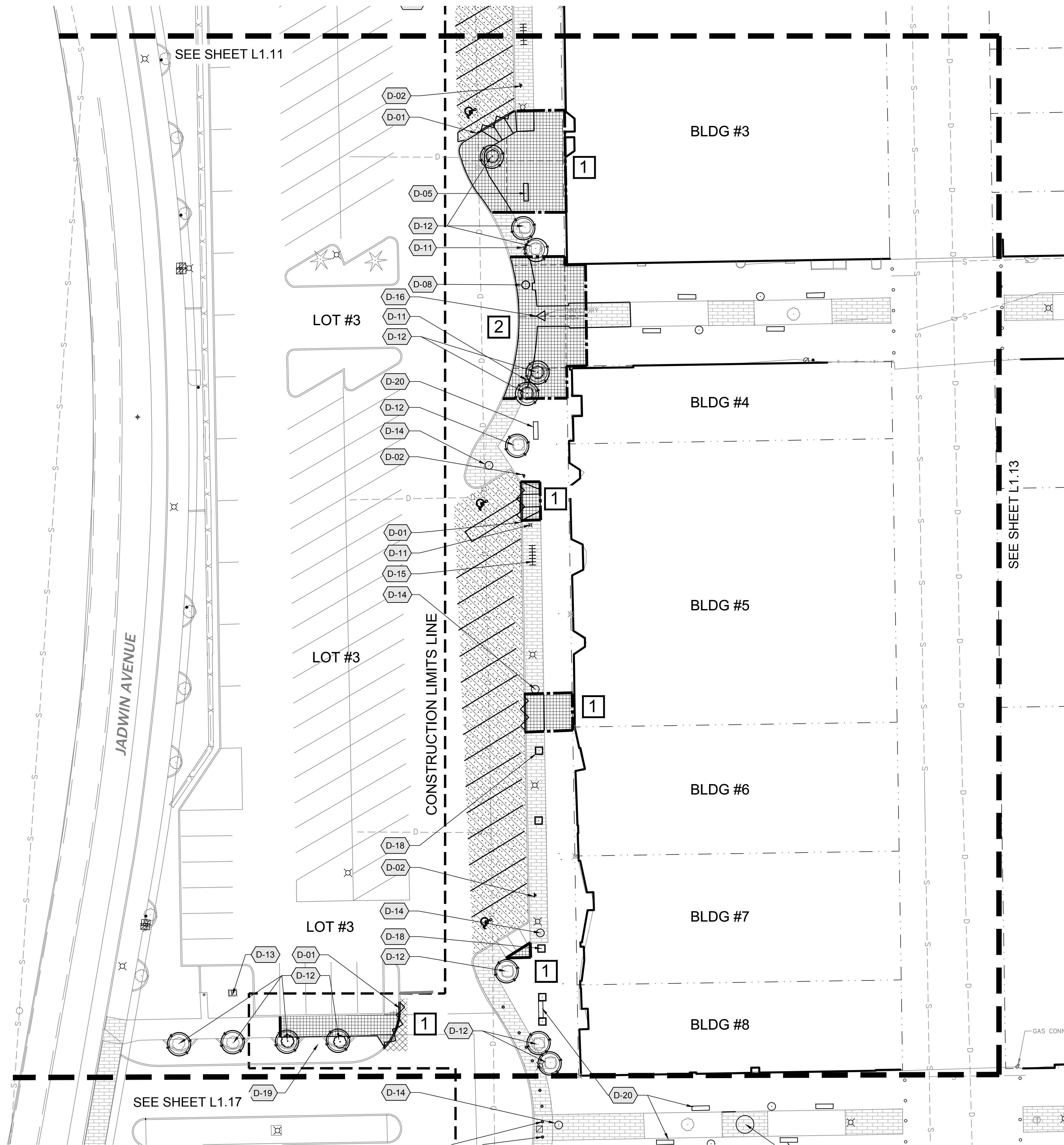
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(509) 3655653-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 7

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.17



LEGEND

PHASING:

- 1 - FIRST PHASE
- 2 - SECOND PHASE
- 3 - THIRD PHASE

1

2

3

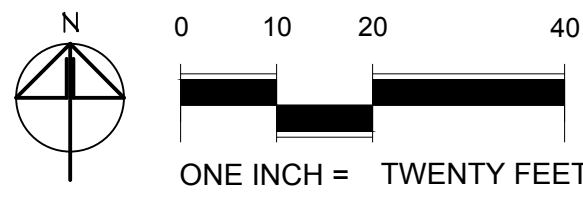
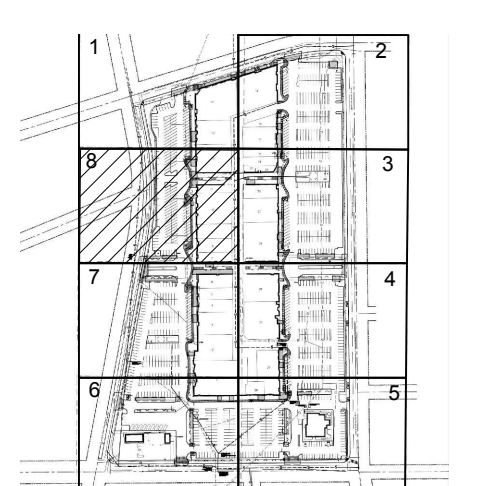
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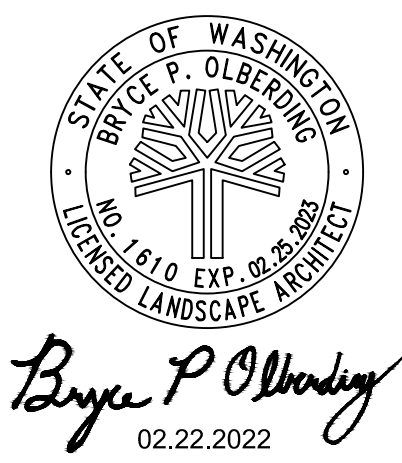
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	SAVE AND PROTECT EXISTING TREES PER DETAIL (TYP.)
	SAVE AND PROTECT EXISTING UTILITIES (TYP.)
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	SAVE AND PROTECT EXISTING BIKE RACK
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	SAVE AND PROTECT EXISTING PLANTER AND ASSOCIATED IRRIGATION
	PATCH BACK EXISTING LANDSCAPE THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITY (TYP.)
	SAVE AND PROTECT EXISTING BENCH(ES) IN PLACE
SYMBOL	Demolition DESCRIPTION
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	APPROXIMATE AREA OF ASPHALT AND BASE COURSE REMOVAL

KEY MAP



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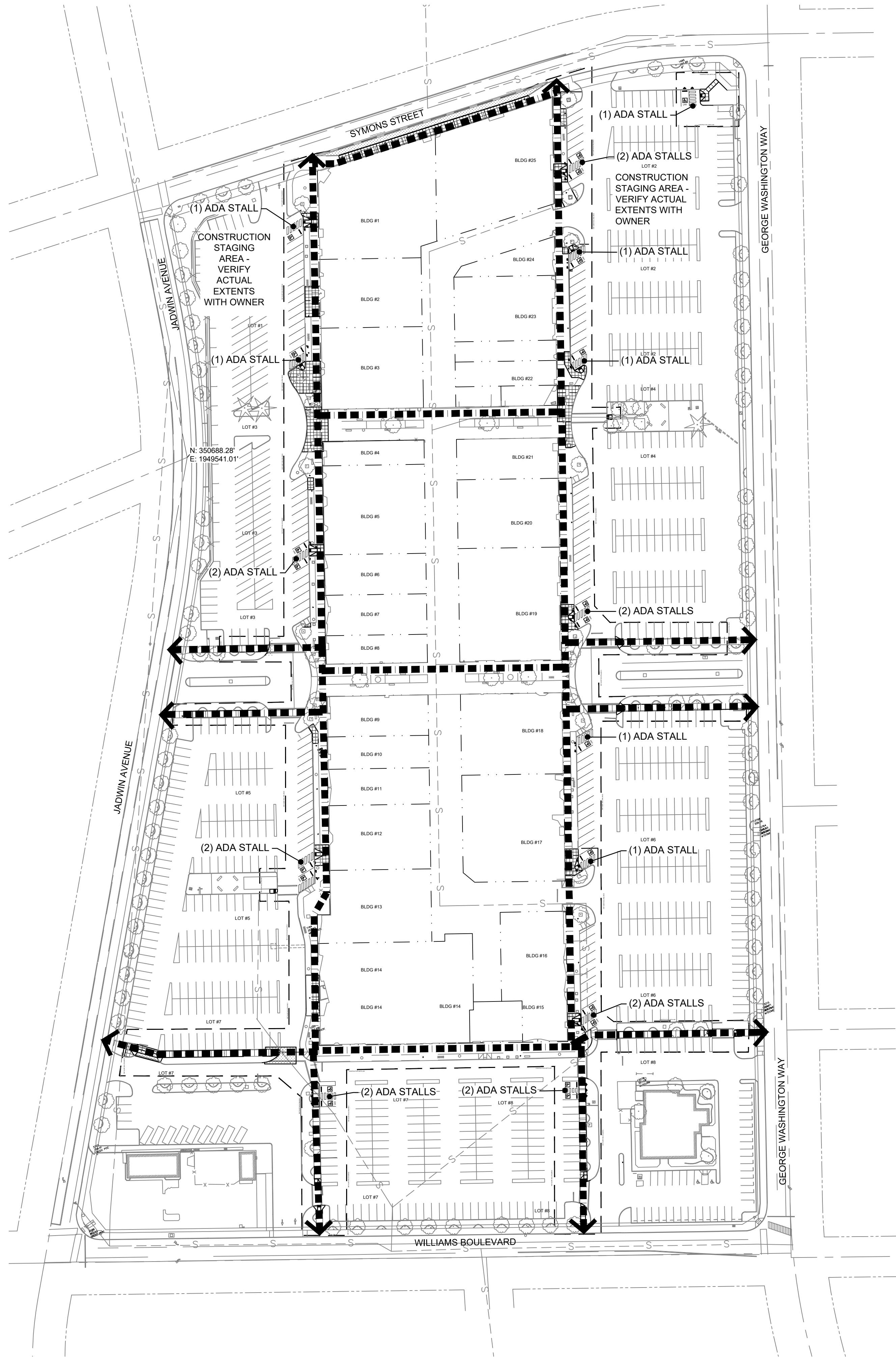
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PASCO, WA 99301
(509) 365563-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
DEMOLITION PLAN - AREA 8

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.18



LEGEND

- CONSTRUCTION LIMITS LINE
- ADA ACCESSIBLE ROUTE(S)
- CONCRETE WHEELSTOPS PER DETAIL (TYP.)
- EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
- CONCRETE FLATWORK SCORE JOINT PER DETAIL & SPECS (TYP.) EXPANSION JOINT PER DETAIL & SPECS (TYP.)

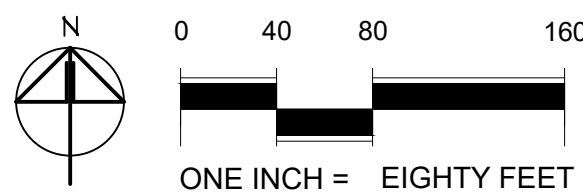
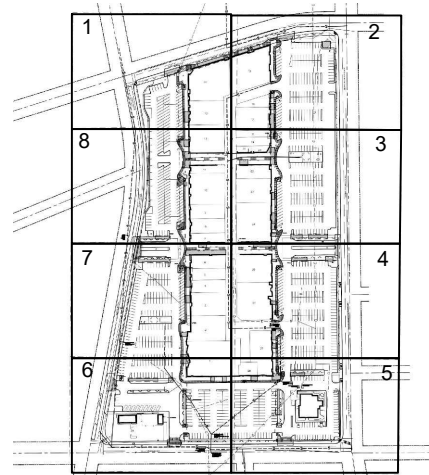
GENERAL NOTES

- REFER CLOSELY TO BUILDING LAYOUT DRAWINGS IN RELATION TO SITE LAYOUT ITEMS. CONTRACTOR TO VERIFY LISTED DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES ON SITE OR ADJACENT PROPERTY SHALL BE CONTRACTOR'S RESPONSIBILITY.
- COORDINATE WITH SITE DEMOLITION PLAN.
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
- ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF WALK, EDGE OF PAVEMENT, EDGE OF FOUNDATION, EDGE OF WALLS OR CENTER OF POST.
- CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO NEW OR EXISTING IMPROVEMENTS AS RESULT OF NEW CONSTRUCTION (TYP.).
- NO WORK IN THE PUBLIC R.O.W BEYOND TYING IN NEW FLATWORK TO EXISTING.
- INSTALL ADA RAMPS PER CITY OF RICHLAND'S STANDARDS.
- GRIND / REMOVE / REPLACE ALL TRIP HAZARDS WITHIN CONCRETE FLATWORK PATHWAYS. SLOPE OF GRIND AREAS NOT TO EXCEED 8%.

PARKING ANALYSIS

EXISTING PARKING STALLS-
TOTAL = 1,046
ADA STALLS REQUIRED = 21
ADA STALLS PROVIDED = 21

KEY MAP



CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND,WA
OVERALL LAYOUT PLAN

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
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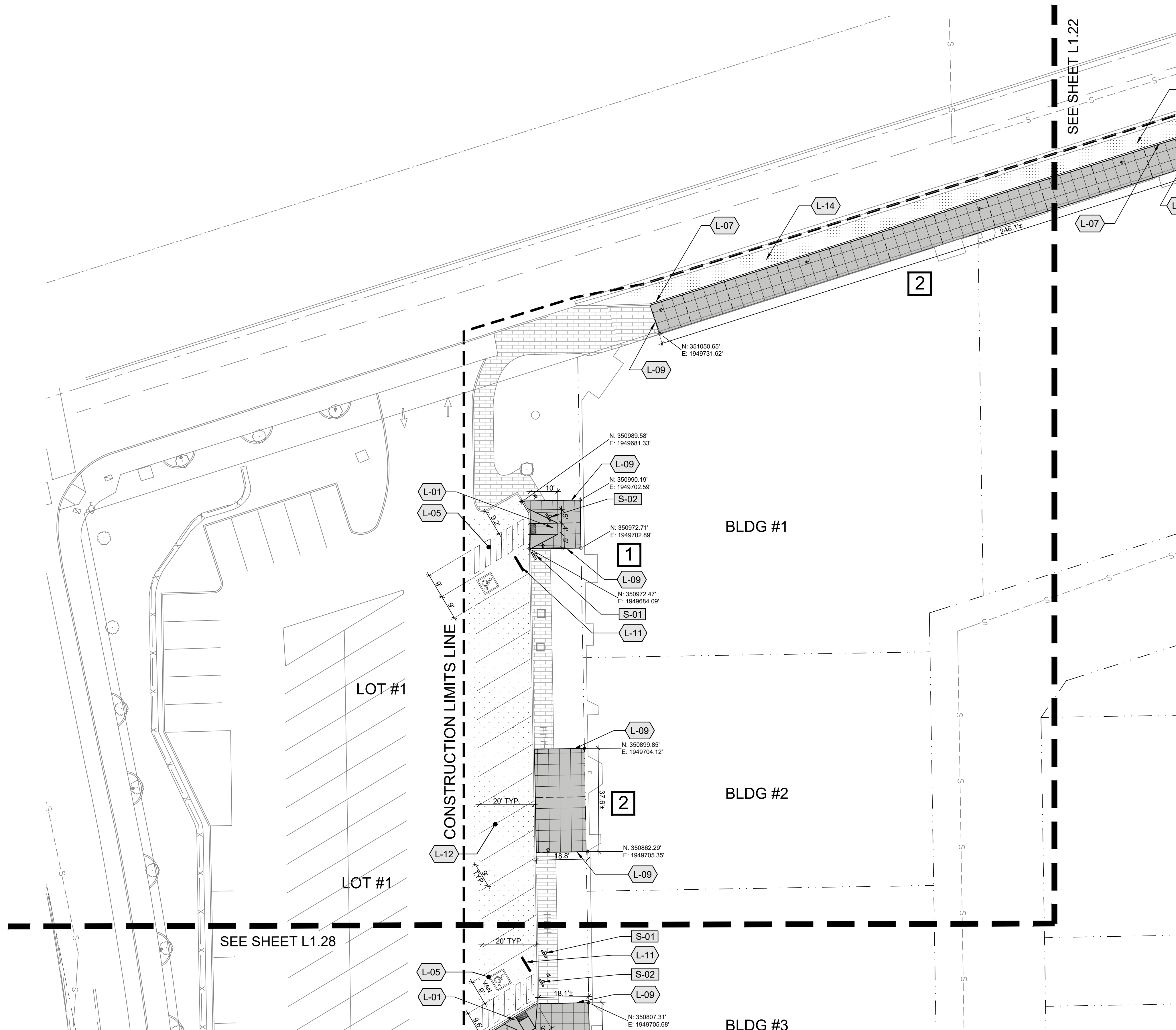
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LEGEND

CONSTRUCTION LIMITS LINE

CONSTRUCTION LIMITS LINE

ADA ACCESSIBLE ROUTE(S)

CONCRETE WHEELSTOPS PER DETAIL (TYP.)

EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)

CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)

PHASING:
• 1 - FIRST PHASE
• 2 - SECOND PHASE
• 3 - THIRD PHASE

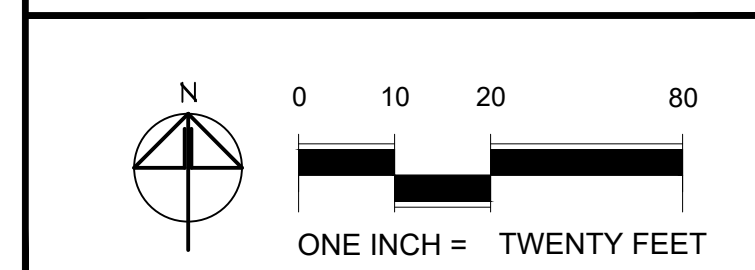
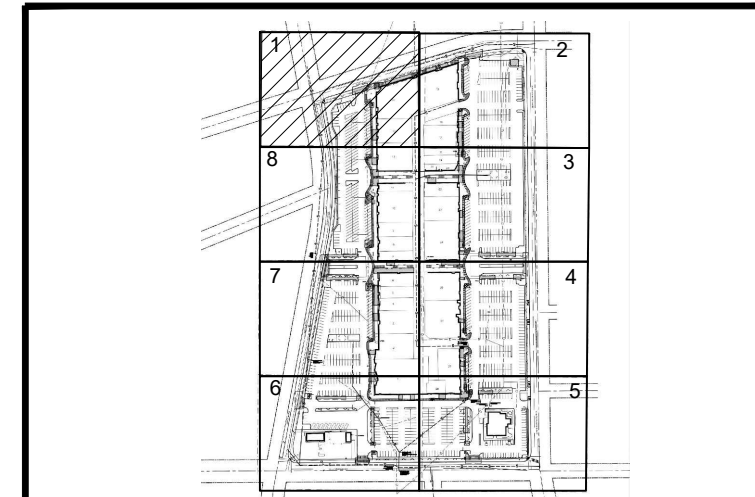
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KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
[S-01]	INSTALL STATE APPROVED ADA PARKING SIGN. PROVIDE VAN SIGN WHERE APPLICABLE PER DETAIL (TYP.)	11/L1.40 8 & 9/L1.41
[S-02]	INSTALL NO PARKING SIGN PER DETAIL (TYP.)	11/L1.40 8/L1.41
[S-03]	INSTALL STOP SIGN PER DETAIL.	11/L1.40 8/L1.41
SYMBOL	DESCRIPTION	DETAIL
[L-01]	INSTALL CONCRETE ADA RAMP PER CITY OF RICHLAND STANDARD DETAIL ST-04 (TYPE 1B)	12/L1.40
[L-02]	INSTALL TRUNCATED DOMES PER CITY OF RICHLAND STANDARD DETAIL ST-21	1/L1.41
[L-03]	INSTALL TYPE #2 CURB CUT RAMP PER DETAIL	4/L1.41
[L-04]	INSTALL TYPE #3 CURB CUT RAMP PER DETAIL	5/L1.41
[L-05]	INSTALL TYPICAL ACCESSIBLE PARKING LAYOUT (SIGNAGE/STRIPIING/ACCESS RAMP) PER DETAIL	1/L1.40
[L-06]	INSTALL THICKENED EDGE CONCRETE PER DETAIL	8/L1.40
[L-07]	INSTALL STANDARD VERTICAL CURB PER DETAIL	3/L1.41
[L-08]	INSTALL CURB END PER DETAIL	6/L1.41
[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
[L-10]	SAVE AND PROTECT EXISTING TREE. PRUNE AS REQUIRED TO PROVIDE VERTICAL CLEARANCES OF 80" OR MORE ON TREES.	6/L1.40
[L-11]	INSTALL CONCRETE WHEEL STOP PER DETAIL (TYP.)	4/L1.40
[L-12]	RESTRIPE PARKING STALLS PER DETAIL (TYP.)	9/L1.40
[L-13]	INSTALL CROSSWALK PER DETAIL	10/L1.40
[L-14]	PATCH BACK ASPHALT AS REQUIRED FOR RAMP INSTALLATION (MIN. 2') SEE SPECIFICATIONS (TYP.)	
[L-15]	ASPHALT TO MEET AND MATCH EXISTING ASPHALT.	2/L1.41
[L-16]	REPAIR DISTURBED TURF/LANDSCAPE AREAS WITH MINOR GRADING, TOPSOIL, MULCH AND/OR RE-SEEDING	
SYMBOL	DESCRIPTION	DETAIL
[Pattern]	INSTALL CONCRETE FLATWORK - 4" OVER 4" BASE COURSE	5/L1.40
[Pattern]	ASPHALT MAINTENANCE: FILL CRACKS, SEALCOAT AND RESTRIPE EXISTING ASPHALT AS SHOWN. SEE SPECIFICATIONS	
[Pattern]	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
[Pattern]	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
[Pattern]	EXIST. STAMPED CONCRETE TO REMAIN	

KEY MAP



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STATE OF WASHINGTON
BRYCE P. OLBEDING
No. 1610 EXP. 02-28-2025
LICENSED LANDSCAPE ARCHITECT

Bryce P. Olboding
02.22.2022

Architects West

210 E Lakeside Ave
Coeur d'Alene, ID 83814
t. 208.667.9402
architectswest.com

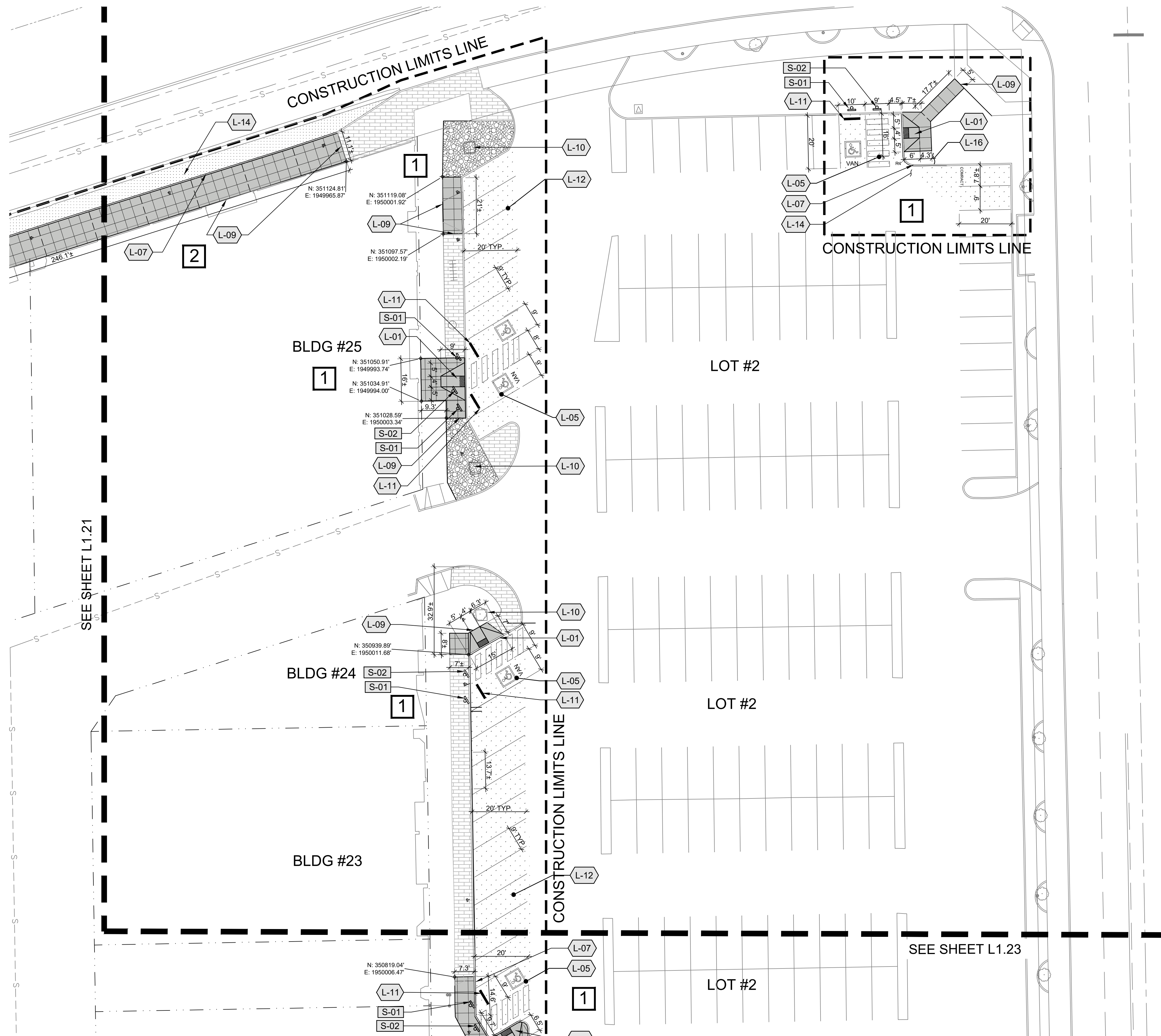
LANDSCAPE ARCHITECT
ARCHITECTS WEST INC.
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COEUR D'ALENE, ID 83814
(208) 667-9402

SURVEYOR
AHLB
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(509) 380-9953-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 1

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.21



LEGEND

- CONSTRUCTION LIMITS LINE
CONSTRUCTION LIMITS LINE
ADA ACCESSIBLE ROUTE(S)
CONCRETE WHEELSTOPS PER DETAIL (TYP.)
EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)
PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

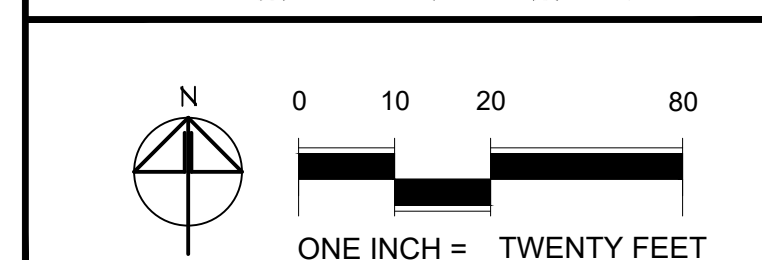
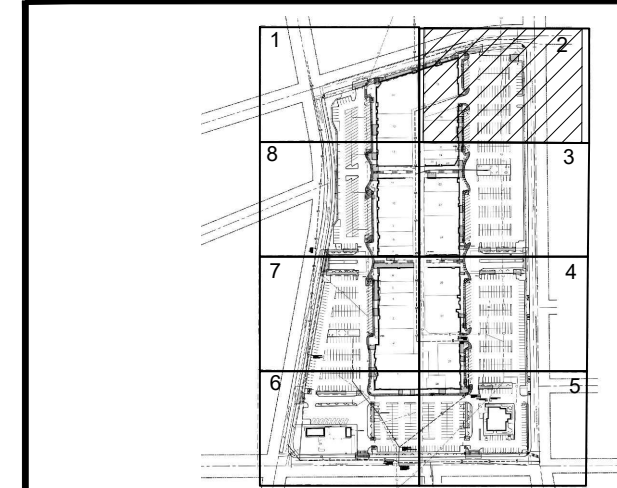
GENERAL NOTES

- REFER CLOSELY TO BUILDING LAYOUT DRAWINGS IN RELATION TO SITE LAYOUT ITEMS. CONTRACTOR TO VERIFY LISTED DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES ON SITE OR ADJACENT PROPERTY SHALL BE CONTRACTOR'S RESPONSIBILITY.
- COORDINATE SITE DEMOLITION PLAN.
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
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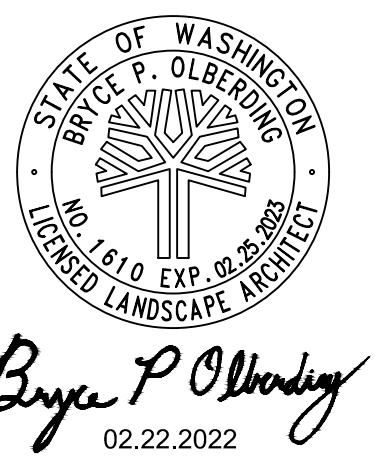
KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
[S-01]	INSTALL STATE APPROVED ADA PARKING SIGN. PROVIDE VAN SIGN WHERE APPLICABLE PER DETAIL (TYP.)	11/L1.40 8 & 9/L1.41
[S-02]	INSTALL NO PARKING SIGN PER DETAIL (TYP.)	11/L1.40 8/L1.41
[S-03]	INSTALL STOP SIGN PER DETAIL.	11/L1.40 8/L1.41
SYMBOL	DESCRIPTION	DETAIL
[L-01]	INSTALL CONCRETE ADA RAMP PER CITY OF RICHLAND STANDARD DETAIL ST-04 (TYPE 1B)	12/L1.40
[L-02]	INSTALL TRUNCATED DOMES PER CITY OF RICHLAND STANDARD DETAIL ST-21	1/L1.41
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[L-04]	INSTALL TYPE #3 CURB CUT RAMP PER DETAIL	5/L1.41
[L-05]	INSTALL TYPICAL ACCESSIBLE PARKING LAYOUT (SIGNAGE/STRIPING/ACCESS RAMP) PER DETAIL	1/L1.40
[L-06]	INSTALL THICKENED EDGE CONCRETE PER DETAIL	8/L1.40
[L-07]	INSTALL STANDARD VERTICAL CURB PER DETAIL	3/L1.41
[L-08]	INSTALL CURB END PER DETAIL	6/L1.41
[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
[L-10]	SAVE AND PROTECT EXISTING TREE. PRUNE AS REQUIRED TO PROVIDE VERTICAL CLEARANCES OF 80" OR MORE ON TREES.	6/L1.40
[L-11]	INSTALL CONCRETE WHEEL STOP PER DETAIL (TYP.)	4/L1.40
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[L-15]	ASPHALT TO MEET AND MATCH EXISTING ASPHALT.	2/L1.41
[L-16]	REPAIR DISTURBED TURF/LANDSCAPE AREAS WITH MINOR GRADING, TOPSOIL, MULCH AND/OR RE-SEEDING	
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[Pattern]	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
[Pattern]	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
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KEY MAP



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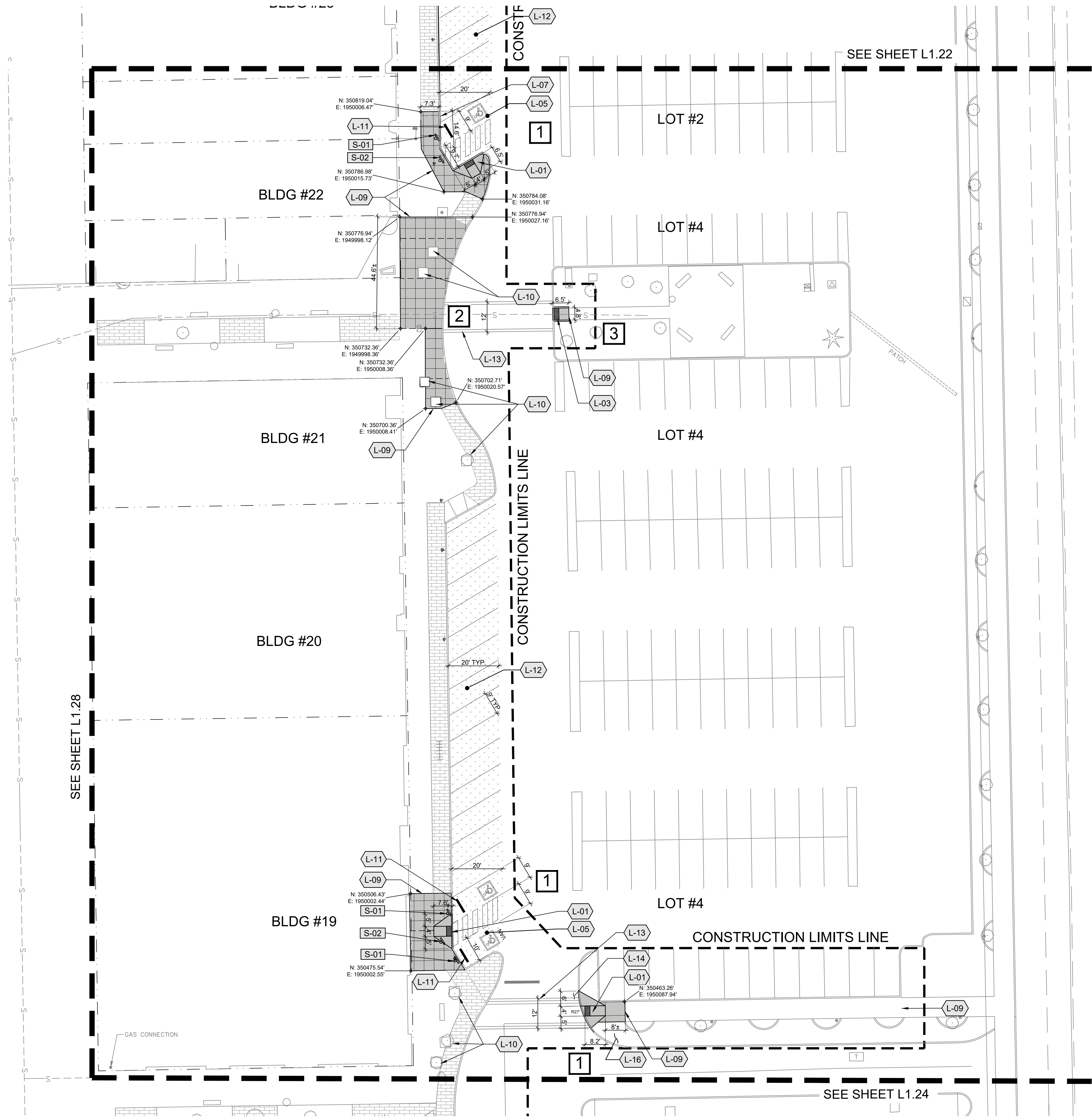


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(509) 380-9853-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 2

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.22



LEGEND

CONSTRUCTION LIMITS LINE
CONSTRUCTION LIMITS LINE
ADA ACCESSIBLE ROUTE(S)
CONCRETE WHEELSTOPS PER DETAIL (TYP.)
EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)
PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

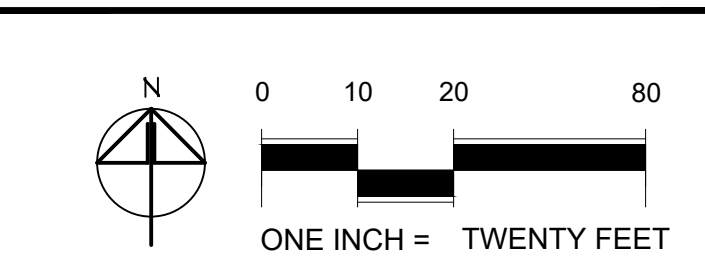
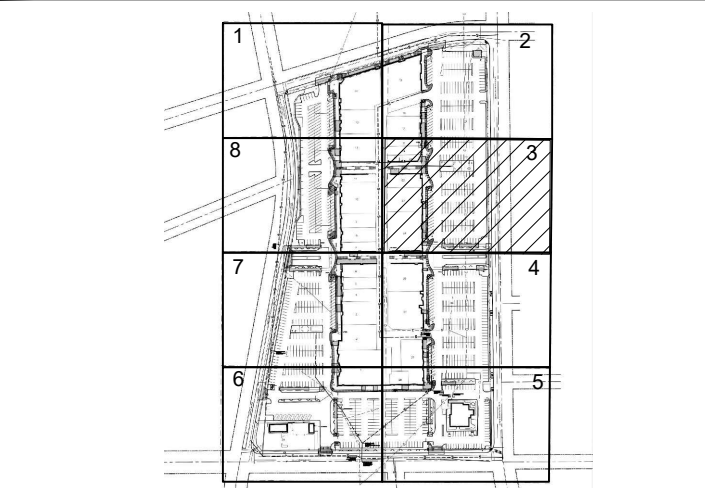
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KEYED NOTES

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L-03	INSTALL TYPE #2 CURB CUT RAMP PER DETAIL	4/L1.41
L-04	INSTALL TYPE #3 CURB CUT RAMP PER DETAIL	5/L1.41
L-05	INSTALL TYPICAL ACCESSIBLE PARKING LAYOUT (SIGNAGE/STRIPING/ACCESS RAMP) PER DETAIL	1/L1.40
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L-09	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
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L-15	ASPHALT TO MEET AND MATCH EXISTING ASPHALT.	2/L1.41
L-16	REPAIR DISTURBED TURF/LANDSCAPE AREAS WITH MINOR GRADING, TOPSOIL, MULCH AND/OR RE-SEEDING	

SYMBOL	DESCRIPTION	DETAIL
	INSTALL CONCRETE FLATWORK - 4" OVER 4" BASE COURSE	5/L1.40
	ASPHALT MAINTENANCE: FILL CRACKS, SEALCOAT AND RESTRIP EXISTING ASPHALT AS SHOWN. SEE SPECIFICATIONS	
	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
	EXIST. STAMPED CONCRETE TO REMAIN	

KEY MAP



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STATE OF WASHINGTON
BRYCE P. OLBEDING
No. 1610 EXP. 02-28-2025
LICENSED LANDSCAPE ARCHITECT

Bryce P. Olbending
02.22.2022

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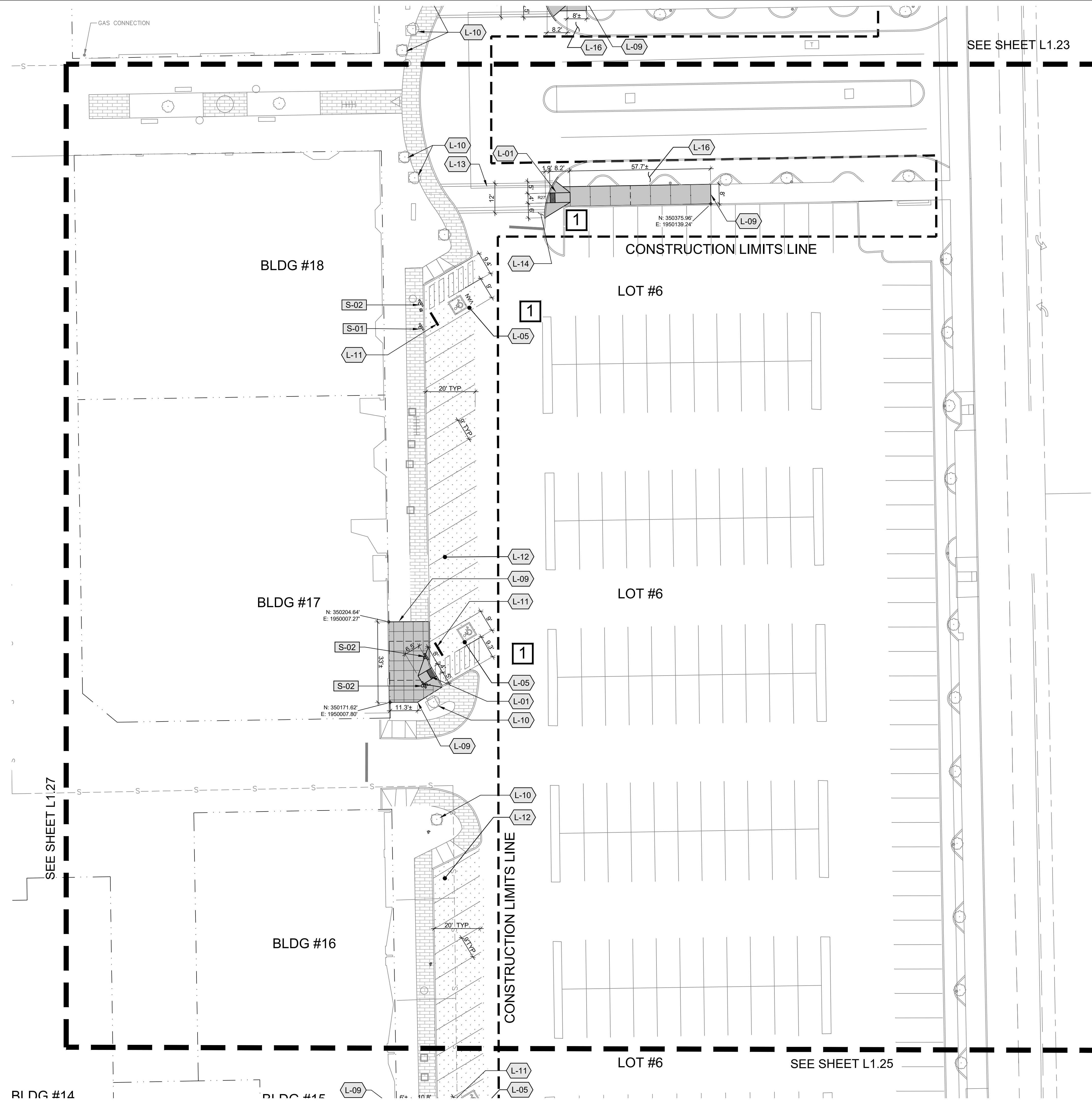
LANDSCAPE ARCHITECT
ARCHITECTS WEST INC.
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(509) 3805853-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 3

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID/PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.23



LEGEND

CONSTRUCTION LIMITS LINE
CONSTRUCTION LIMITS LINE
ADA ACCESSIBLE ROUTE(S)
CONCRETE WHEELSTOPS PER DETAIL (TYP.)
EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)
PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

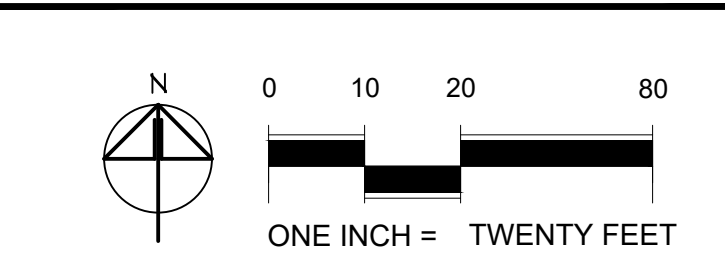
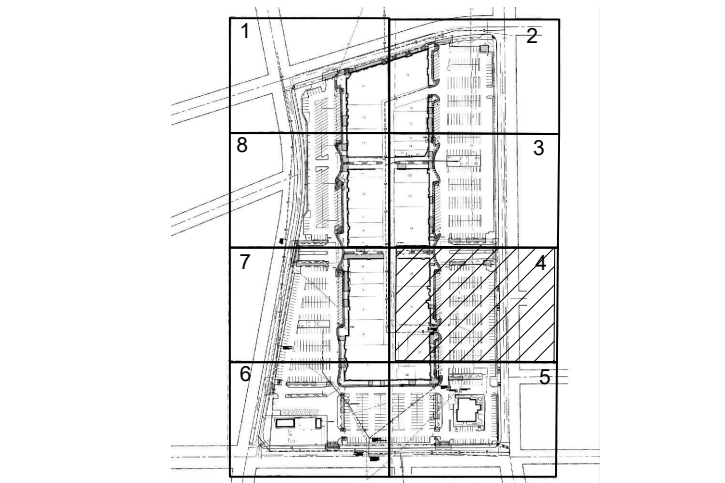
GENERAL NOTES

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KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
[S-01]	INSTALL STATE APPROVED ADA PARKING SIGN. PROVIDE VAN SIGN WHERE APPLICABLE PER DETAIL (TYP.)	11/L1.40 8 & 9/L1.41
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[S-03]	INSTALL STOP SIGN PER DETAIL.	11/L1.40 8/L1.41
SYMBOL	DESCRIPTION	DETAIL
[L-01]	INSTALL CONCRETE ADA RAMP PER CITY OF RICHLAND STANDARD DETAIL ST-04 (TYPE 1B)	12/L1.40
[L-02]	INSTALL TRUNCATED DOMES PER CITY OF RICHLAND STANDARD DETAIL ST-21	1/L1.41
[L-03]	INSTALL TYPE #2 CURB CUT RAMP PER DETAIL	4/L1.41
[L-04]	INSTALL TYPE #3 CURB CUT RAMP PER DETAIL	5/L1.41
[L-05]	INSTALL TYPICAL ACCESSIBLE PARKING LAYOUT (SIGNAGE/STRIPING/ACCESS RAMP) PER DETAIL	1/L1.40
[L-06]	INSTALL THICKENED EDGE CONCRETE PER DETAIL	8/L1.40
[L-07]	INSTALL STANDARD VERTICAL CURB PER DETAIL	3/L1.41
[L-08]	INSTALL CURB END PER DETAIL	6/L1.41
[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
[L-10]	SAVE AND PROTECT EXISTING TREE. PRUNE AS REQUIRED TO PROVIDE VERTICAL CLEARANCES OF 80" OR MORE ON TREES.	6/L1.40
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SYMBOL	DESCRIPTION	DETAIL
[Pattern]	INSTALL CONCRETE FLATWORK - 4" OVER 4" BASE COURSE	5/L1.40
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[Pattern]	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
[Pattern]	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
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KEY MAP



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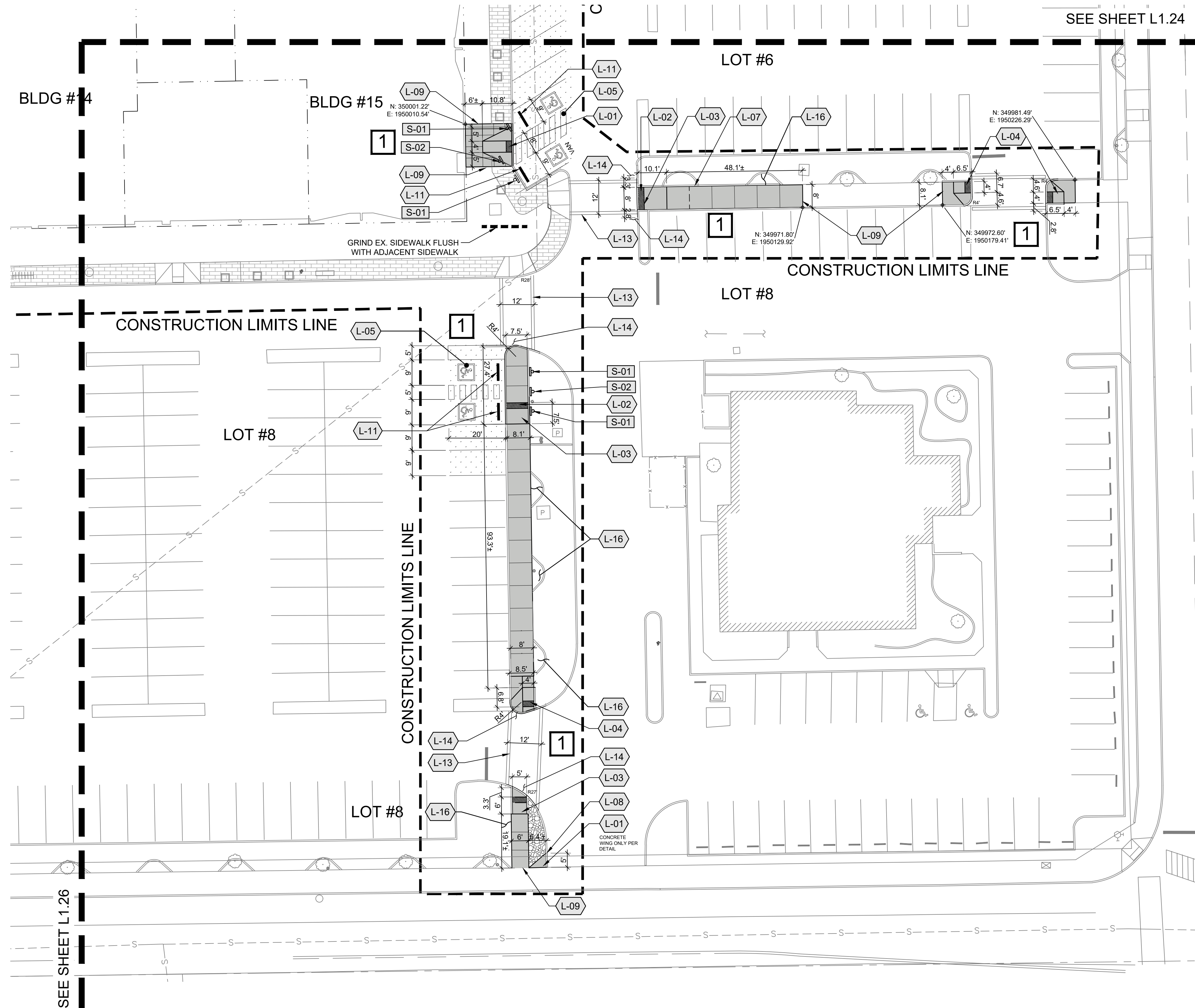
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SURVEYOR
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PASCO, WA 99301
(509) 380-9853-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 4

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID/PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.24



LEGEND

- CONSTRUCTION LIMITS LINE
- CONSTRUCTION LIMITS LINE
- ADA ACCESSIBLE ROUTE(S)
- CONCRETE WHEELSTOPS PER DETAIL (TYP.)
- EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
- CONCRETE FLATWORK
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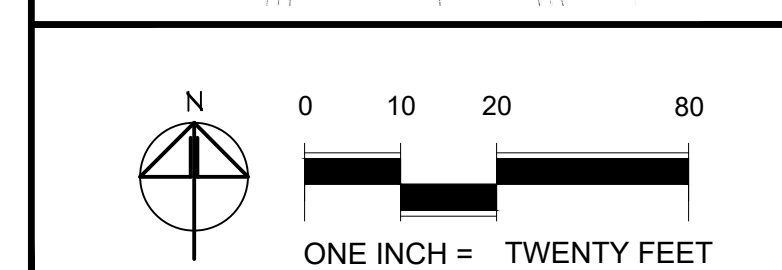
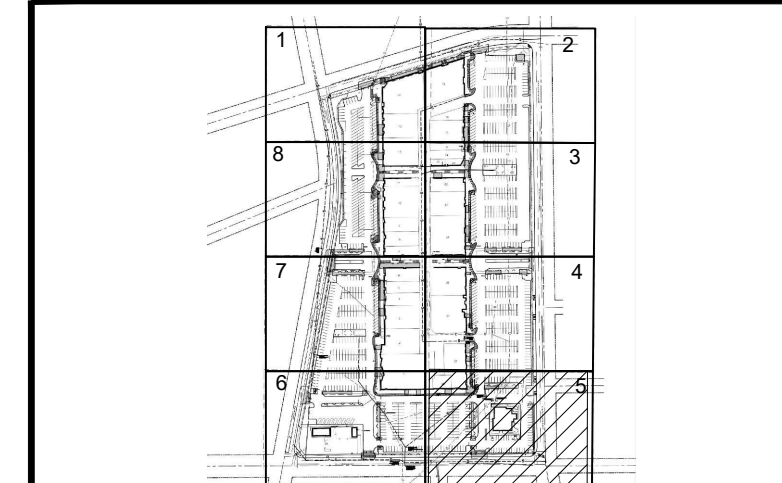
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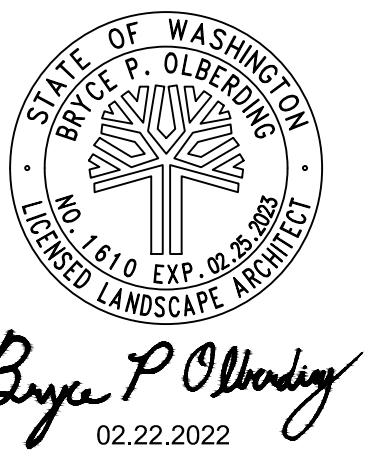
KEYED NOTES

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[Pattern]	INSTALL CONCRETE FLATWORK - 4" OVER 4" BASE COURSE	5/L1.40
[Pattern]	ASPHALT MAINTENANCE: FILL CRACKS, SEALCOAT AND RESTRIP EXISTING ASPHALT AS SHOWN. SEE SPECIFICATIONS	
[Pattern]	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
[Pattern]	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
[Pattern]	EXIST. STAMPED CONCRETE TO REMAIN	

KEY MAP



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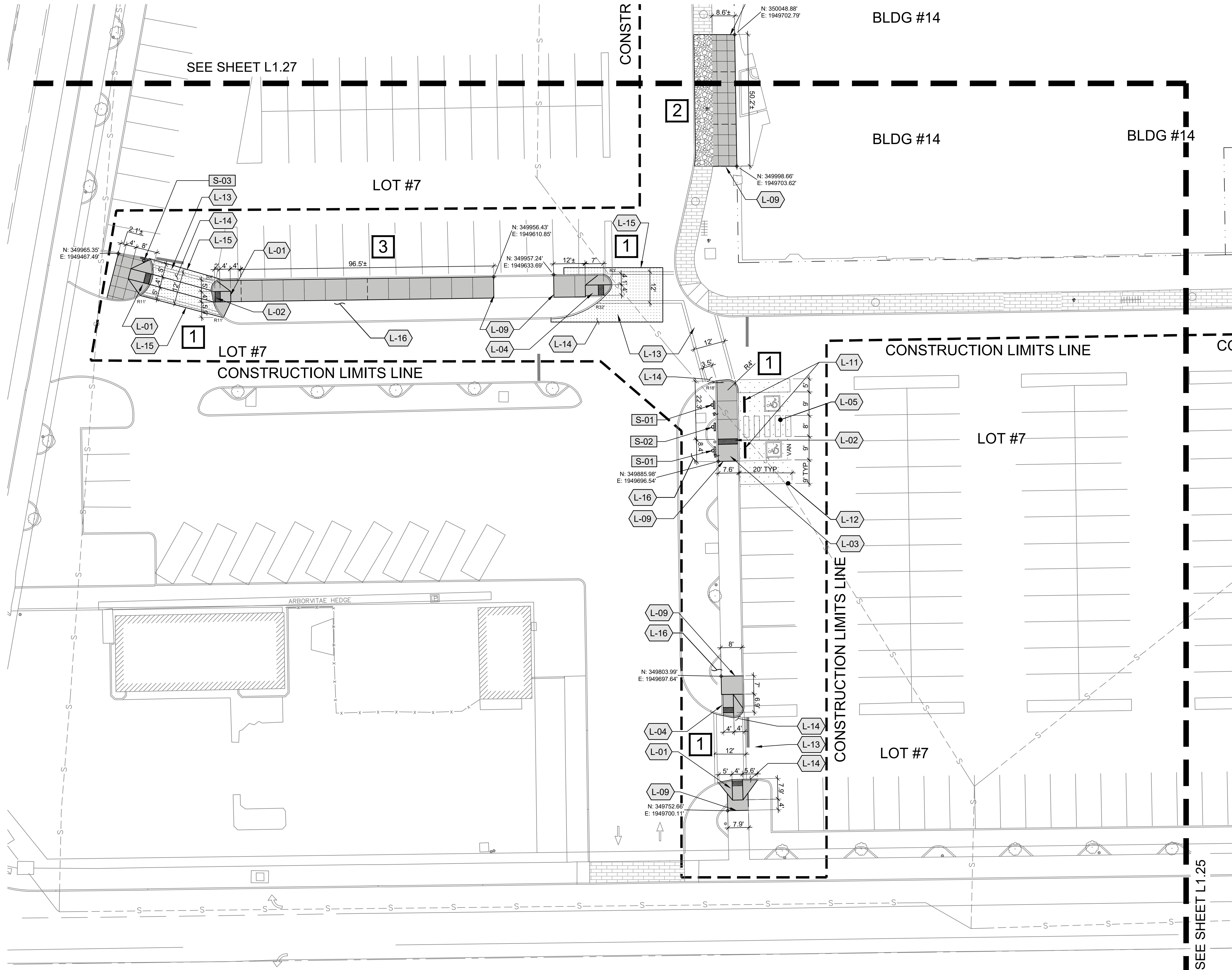
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AHBL
5804 ROAD 90, SUITE H
PASCO, WA 99301
(509) 380-9853-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 5

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID/PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.25



LEGEND

- CONSTRUCTION LIMITS LINE
- CONSTRUCTION LIMITS LINE
- ADA ACCESSIBLE ROUTE(S)
- CONCRETE WHEELSTOPS PER DETAIL (TYP.)
- EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)
- CONCRETE FLATWORK
- SCORE JOINT PER DETAIL & SPECS (TYP.)
- EXPANSION JOINT PER DETAIL & SPECS (TYP.)
- PHASING:
 - 1 - FIRST PHASE
 - 2 - SECOND PHASE
 - 3 - THIRD PHASE

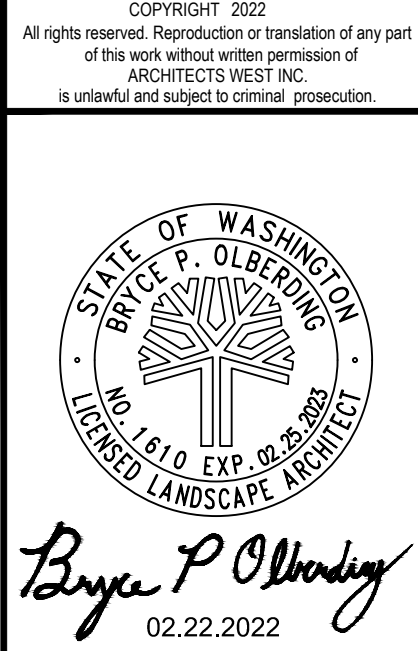
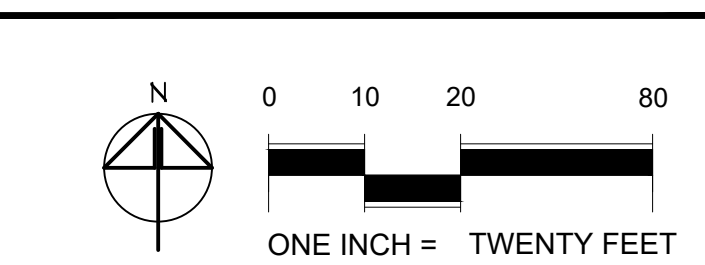
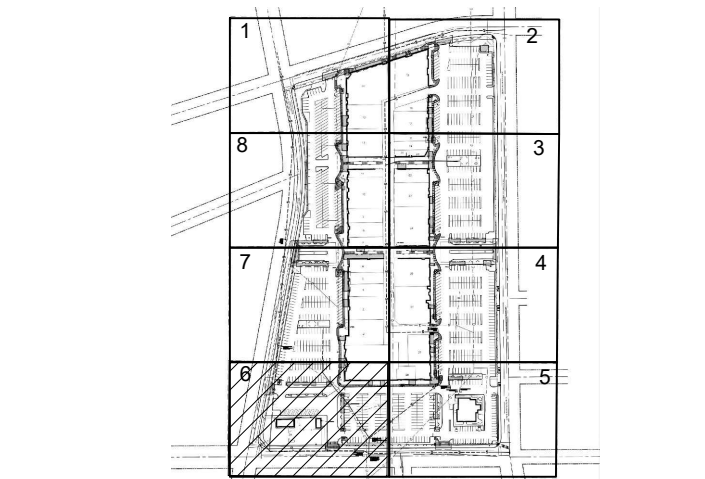
GENERAL NOTES

- REFER CLOSELY TO BUILDING LAYOUT DRAWINGS IN RELATION TO SITE LAYOUT ITEMS. CONTRACTOR TO VERIFY LISTED DIMENSIONS PRIOR TO CONSTRUCTION.
- CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES ON SITE OR ADJACENT PROPERTY SHALL BE CONTRACTOR'S RESPONSIBILITY.
- COORDINATE SITE DEMOLITION PLAN.
- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.
- ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF WALK, EDGE OF PAVEMENT, EDGE OF FOUNDATION, EDGE OF WALLS OR CENTER OF POST.
- CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO NEW OR EXISTING IMPROVEMENTS AS RESULT OF NEW CONSTRUCTION (TYP.).
- NO WORK IN THE PUBLIC R.O.W BEYOND TYING IN NEW FLATWORK TO EXISTING.

KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
[S-01]	INSTALL STATE APPROVED ADA PARKING SIGN. PROVIDE VAN SIGN WHERE APPLICABLE PER DETAIL (TYP.)	11/L1.40 8 & 9/L1.41
[S-02]	INSTALL NO PARKING SIGN PER DETAIL (TYP.)	11/L1.40 8/L1.41
[S-03]	INSTALL STOP SIGN PER DETAIL.	11/L1.40 8/L1.41
SYMBOL	DESCRIPTION	DETAIL
[L-01]	INSTALL CONCRETE ADA RAMP PER CITY OF RICHLAND STANDARD DETAIL ST-04 (TYPE 1B)	12/L1.40
[L-02]	INSTALL TRUNCATED DOMES PER CITY OF RICHLAND STANDARD DETAIL ST-21	1/L1.41
[L-03]	INSTALL TYPE #2 CURB CUT RAMP PER DETAIL	4/L1.41
[L-04]	INSTALL TYPE #3 CURB CUT RAMP PER DETAIL	5/L1.41
[L-05]	INSTALL TYPICAL ACCESSIBLE PARKING LAYOUT (SIGNAGE/STRIPING/ACCESS RAMP) PER DETAIL	1/L1.40
[L-06]	INSTALL THICKENED EDGE CONCRETE PER DETAIL	8/L1.40
[L-07]	INSTALL STANDARD VERTICAL CURB PER DETAIL	3/L1.41
[L-08]	INSTALL CURB END PER DETAIL	6/L1.41
[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
[L-10]	SAVE AND PROTECT EXISTING TREE. PRUNE AS REQUIRED TO PROVIDE VERTICAL CLEARANCES OF 80" OR MORE ON TREES.	6/L1.40
[L-11]	INSTALL CONCRETE WHEEL STOP PER DETAIL (TYP.)	4/L1.40
[L-12]	RESTRIP PARKING STALLS PER DETAIL (TYP.)	9/L1.40
[L-13]	INSTALL CROSSWALK PER DETAIL	10/L1.40
[L-14]	PATCH BACK ASPHALT AS REQUIRED FOR RAMP INSTALLATION (MIN. 2') SEE SPECIFICATIONS (TYP.)	
[L-15]	ASPHALT TO MEET AND MATCH EXISTING ASPHALT.	2/L1.41
[L-16]	REPAIR DISTURBED TURF/LANDSCAPE AREAS WITH MINOR GRADING, TOPSOIL, MULCH AND/OR RE-SEEDING	
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[Flatwork]	INSTALL CONCRETE FLATWORK - 4" OVER 4" BASE COURSE	5/L1.40
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[3" Asphalt]	3" ASPHALT OVER 6" BASE COURSE SECTION	7/L1.40
[Mulch]	MINERAL MULCH TYPE 'A' OVER LANDSCAPE FABRIC 3" DEPTH AS SPECIFIED	
[Concrete]	EXIST. STAMPED CONCRETE TO REMAIN	

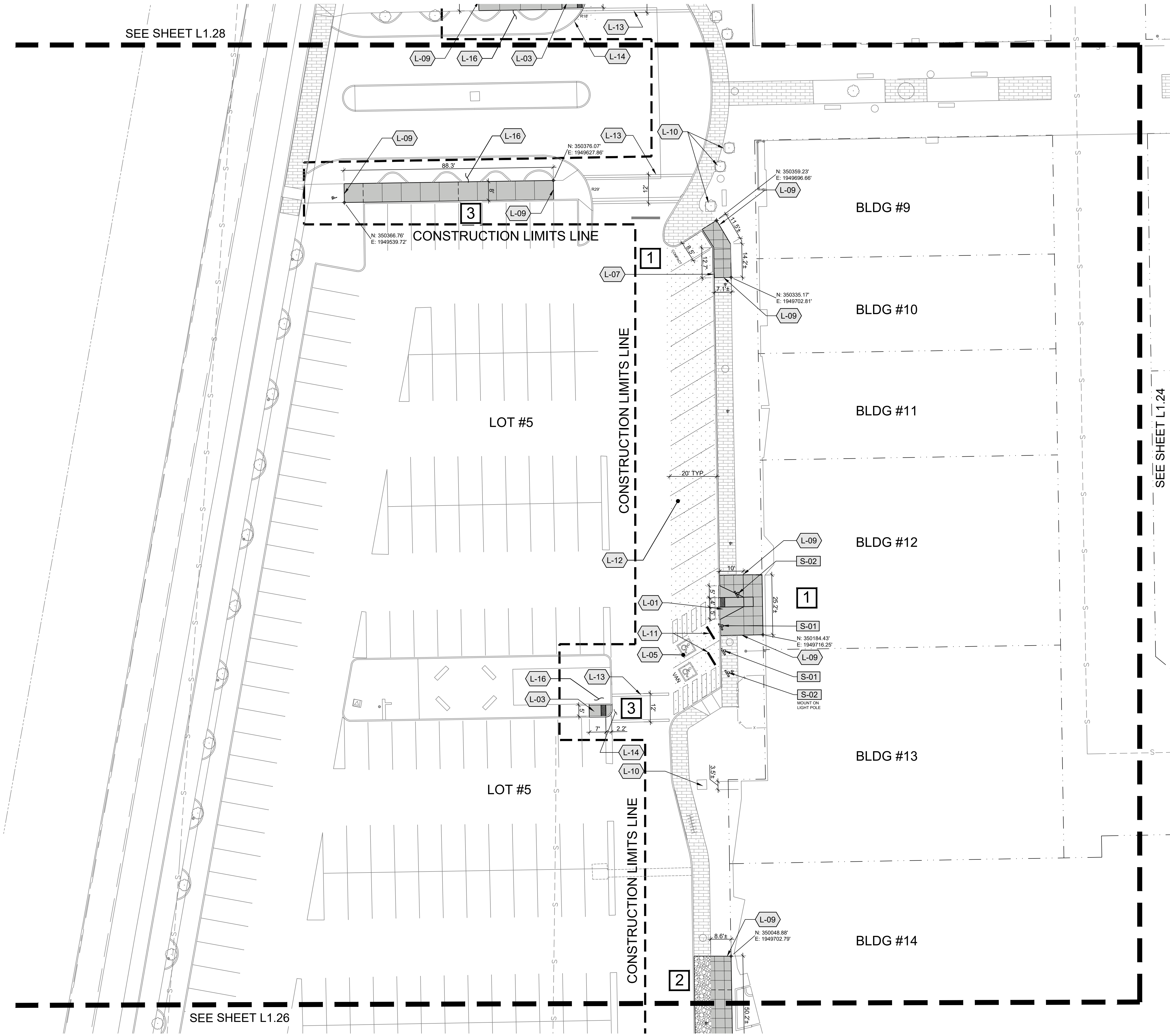
KEY MAP



CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 6

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.26



LEGEND

CONSTRUCTION LIMITS LINE

CONSTRUCTION LIMITS LINE

ADA ACCESSIBLE ROUTE(S)

CONCRETE WHEELSTOPS PER DETAIL (TYP.)

EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)

CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)

PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

1. REFER CLOSELY TO BUILDING LAYOUT DRAWINGS IN RELATION TO SITE LAYOUT ITEMS. CONTRACTOR TO VERIFY LISTED DIMENSIONS PRIOR TO CONSTRUCTION.

2. CONTRACTOR TO VERIFY LOCATION OF ALL UTILITIES PRIOR TO INITIATION OF ANY DEMOLITION OR CONSTRUCTION OPERATIONS. ANY DAMAGE TO EXISTING UTILITIES ON SITE OR ADJACENT PROPERTY SHALL BE CONTRACTOR'S RESPONSIBILITY.

3. COORDINATE SITE DEMOLITION PLAN.

4. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING.

5. ALL DIMENSIONS ARE TO FACE OF CURB, EDGE OF WALK, EDGE OF PAVEMENT, EDGE OF FOUNDATION, EDGE OF WALLS OR CENTER OF POST.

6. CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO NEW OR EXISTING IMPROVEMENTS AS RESULT OF NEW CONSTRUCTION (TYP.).

7. NO WORK IN THE PUBLIC R.O.W BEYOND TYING IN NEW FLATWORK TO EXISTING.

KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
[S-01]	INSTALL STATE APPROVED ADA PARKING SIGN. PROVIDE VAN SIGN WHERE APPLICABLE PER DETAIL (TYP.)	11/L1.40 8 & 9/L1.41
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[S-03]	INSTALL STOP SIGN PER DETAIL.	11/L1.40 8/L1.41
SYMBOL	DESCRIPTION	DETAIL
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[L-06]	INSTALL THICKENED EDGE CONCRETE PER DETAIL	8/L1.40
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[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
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SYMBOL	DESCRIPTION	DETAIL
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KEY MAP

ONE INCH = TWENTY FEET

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Bryce P. O'Leary
02.22.2022

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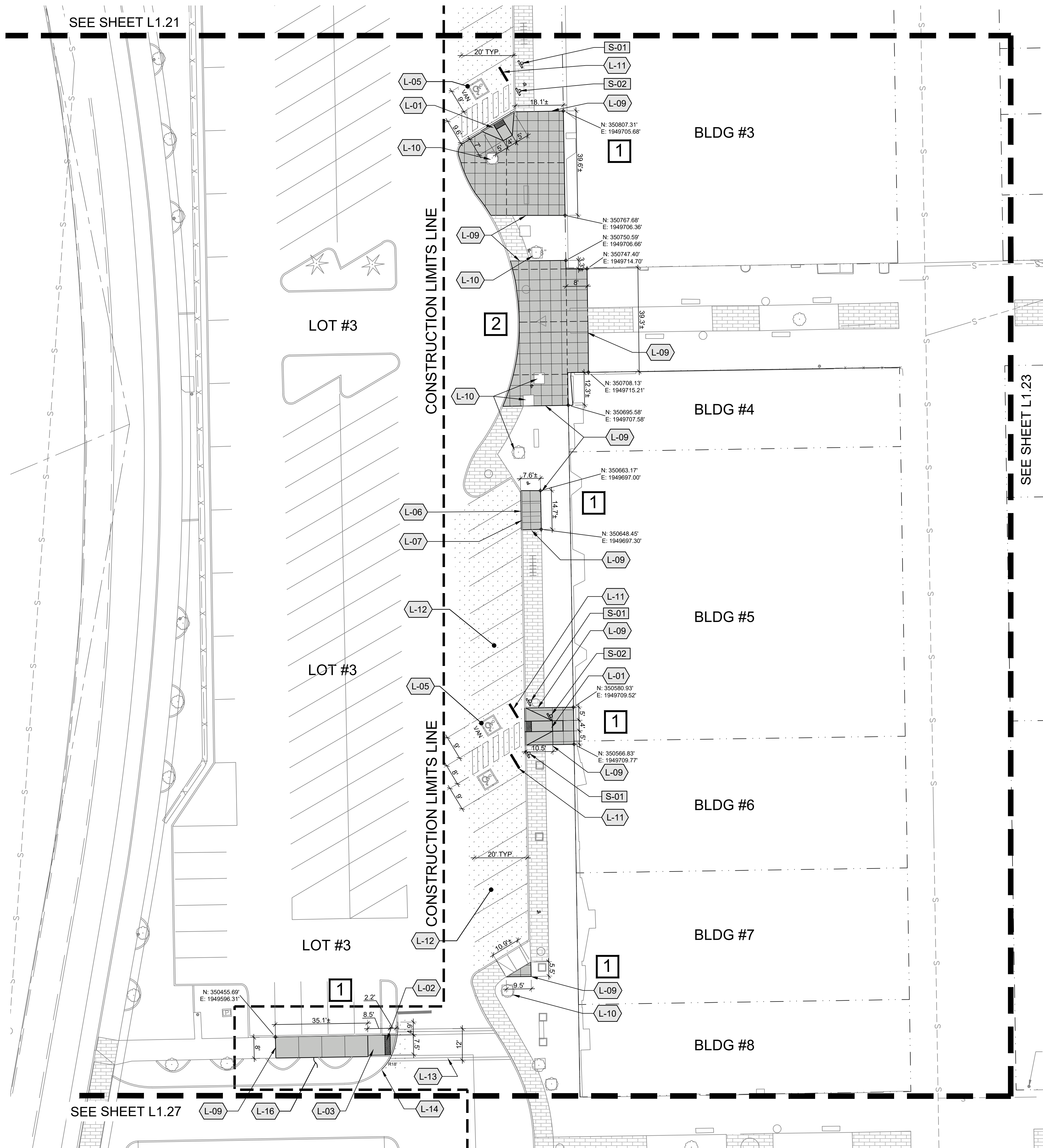
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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 7

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
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REVISION
SHEET NO.

L1.27



LEGEND

CONSTRUCTION LIMITS LINE

CONSTRUCTION LIMITS LINE

ADA ACCESSIBLE ROUTE(S)

CONCRETE WHEELSTOPS PER DETAIL (TYP.)

EXISTING TREE TO REMAIN. SAVE & PROTECT PER DETAIL. PRUNE AS NECESSARY TO MAINTAIN 80" CLEARANCE ABOVE WALKING PATH (TYP.)

CONCRETE FLATWORK
SCORE JOINT PER DETAIL & SPECS (TYP.)
EXPANSION JOINT PER DETAIL & SPECS (TYP.)

PHASING:
1 - FIRST PHASE
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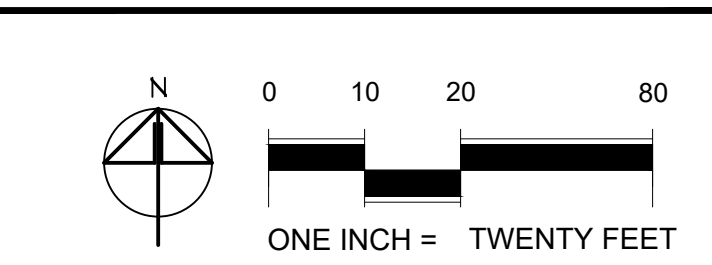
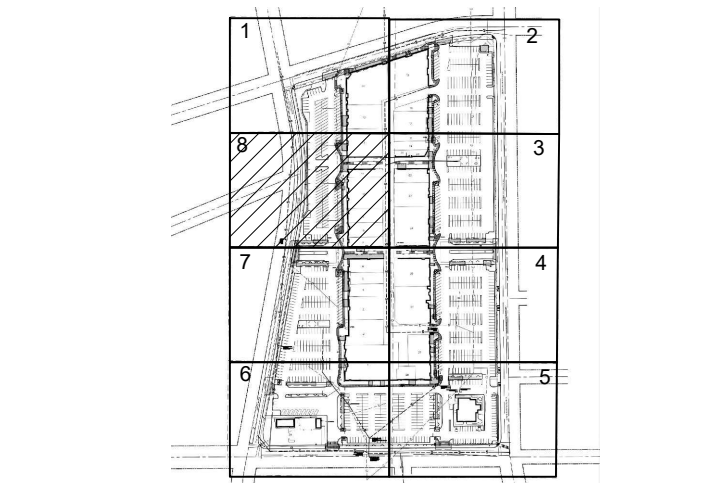
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[L-07]	INSTALL STANDARD VERTICAL CURB PER DETAIL	3/L1.41
[L-08]	INSTALL CURB END PER DETAIL	6/L1.41
[L-09]	CONCRETE FLATWORK TO MEET AND MATCH EXISTING WALK. (TYP.)	2/L1.40
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KEY MAP



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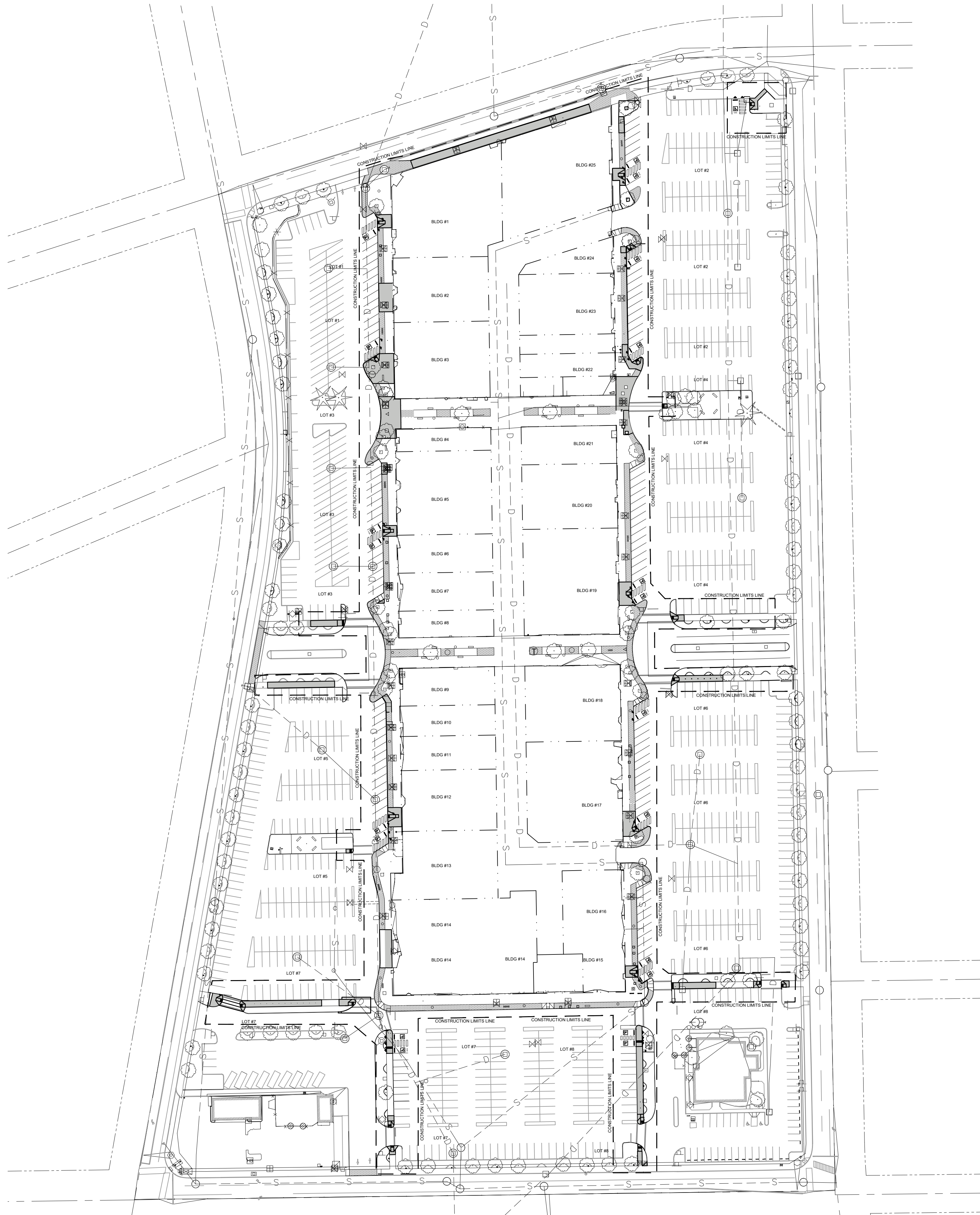
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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
LAYOUT PLAN - AREA 8

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID/PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.28



LEGEND

- 804.02 EXISTING SPOT ELEVATION
- 2.55% DIRECTION OF SLOPE & PERCENT IF SHOWN
- TRW 29.5 TP 26.5 PROPOSED SPOT ELEVATION
- GB GRADE BREAK
- CONSTRUCTION LIMITS LINE CONSTRUCTION LIMITS

GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING. STAKING SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR WITHIN THE STATE.
- CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS NOTED ON THIS PLAN.
- GRADES SHOWN ARE FINISH GRADES.
- ALL FINISH GRADES SHALL BE SMOOTH AND UNIFORM.
- PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND EXTERIOR PROPERTIES.
- PROVIDE POSITIVE DRAINAGE TO DRAINAGE STRUCTURES.
- MINIMUM OF 1.5% CROSS SLOPE ON CONCRETE FLATWORK UNLESS OTHERWISE NOTED.
- WHERE PROPOSED GRADES MEET EXISTING, SAVE AND PROTECT EXISTING MATERIAL TO GREATEST EXTENT POSSIBLE. MINOR GRADE CHANGES IN THESE AREAS ARE ACCEPTABLE.
- CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.
- ADD 300' TO ALL SPOT ELEVATIONS.

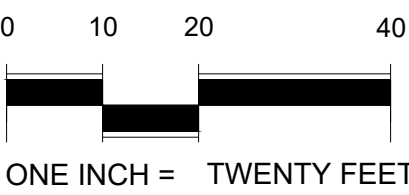
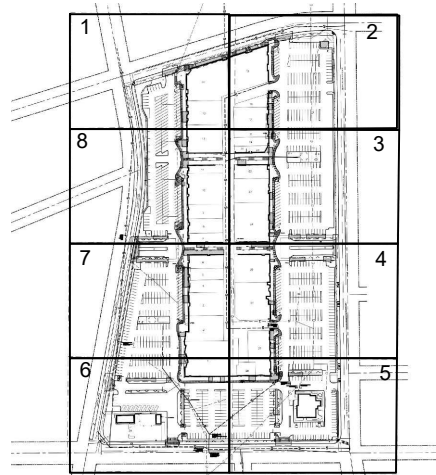
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L.1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L.1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L.1.40
G-07	ADJUST UTILTIY BOX ELEVATIONS AS REQUIRED TO MAKE FLUSH WITH NEW CONCRETE FLATWORK, TYP.	

ABBREVIATION LEGEND

BB	BOTTOM OF BASIN	MH	MANHOLE
BD	BOTTOM OF DRAIN	RWL	RAINWATER LEADER
BS	BOTTOM OF STEP	SB	SPLASH BLOCK
BG	BOTTOM OF GUTTER	SE	SOIL ELEVATION
BRW	FINISH GRADE ADJACENT TO BOTTOM OF RETAINING WALL	SG	SUBGRADE ELEVATION
CI	CURB INLET	TD	TOP OF DRAIN
DW	DRYWELL	TBC	TOP OF BASE COURSE
FL	FLOW LINE - DITCH/PAVEMENT	TC	TOP FACE OF CURB
FFE	FINISHED FLOOR ELEVATION	TG	TOP OF GRATE
FG	FINISH GRADE	TP	TOP OF PAVEMENT
GB	GRADE BREAK	TR	TOP OF RAMP
HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

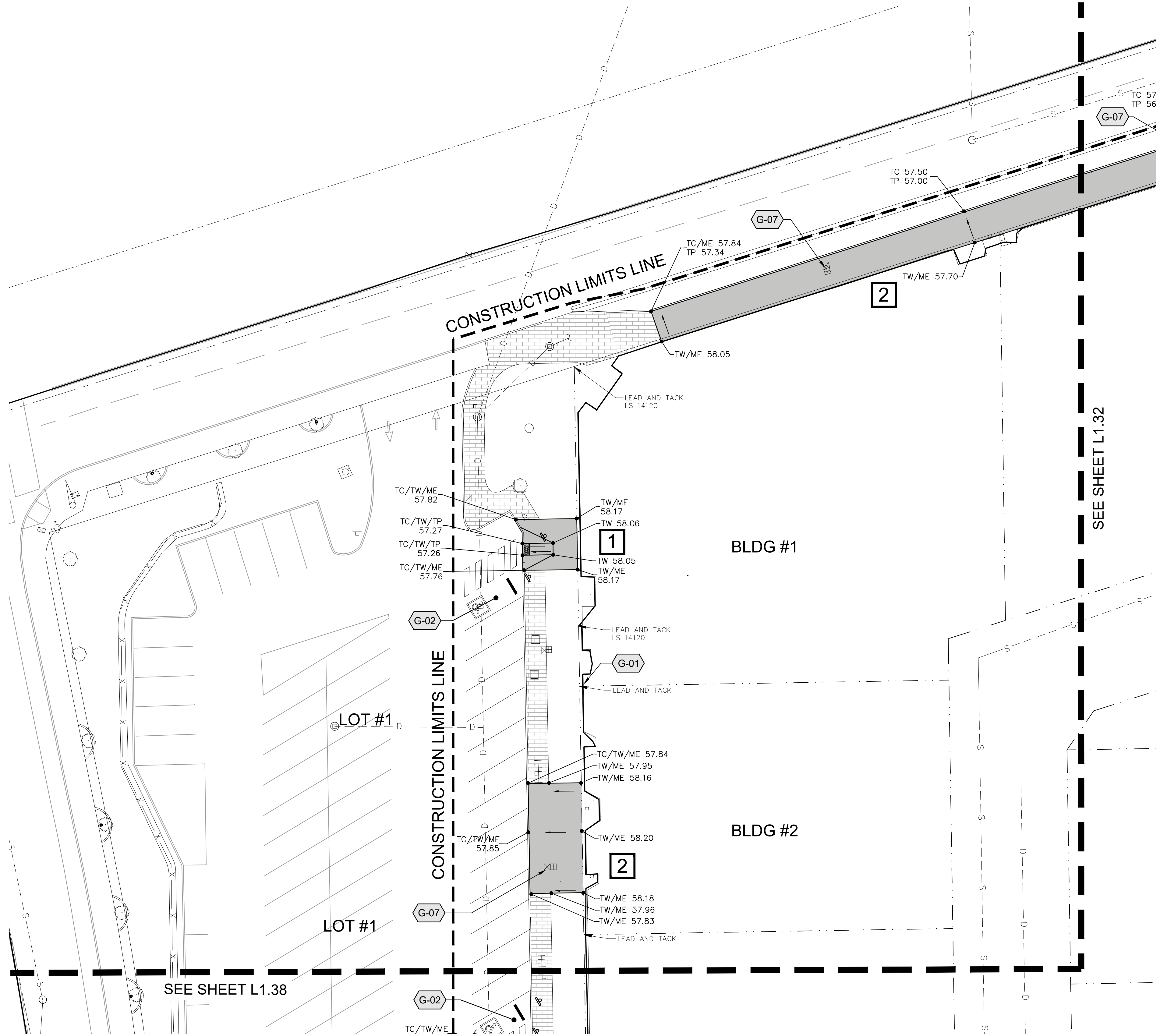
KEY MAP



CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
OVERALL GRADING PLAN

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.30



LEGEND

- EXISTING SPOT ELEVATION
DIRECTION OF SLOPE & PERCENT IF SHOWN
PROPOSED SPOT ELEVATION
GRADE BREAK
CONSTRUCTION LIMITS
PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

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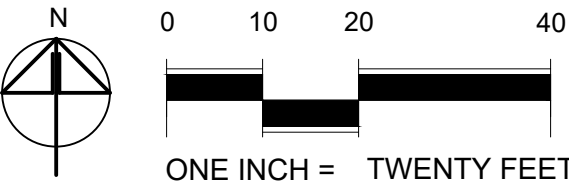
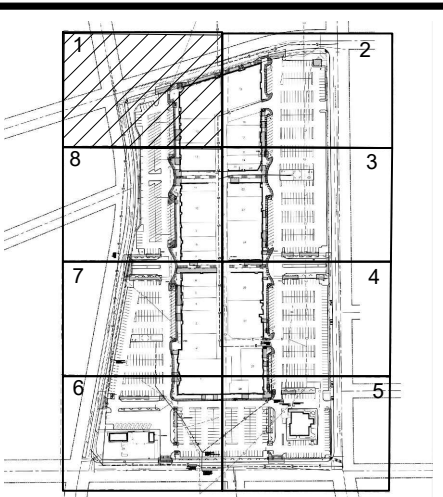
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G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L1.40
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DW	DRYWELL	TBC	TOP OF BASE COURSE
FL	FLOW LINE - DITCH/PAVEMENT	TC	TOP FACE OF CURB
FFE	FINISHED FLOOR ELEVATION	TG	TOP OF GRATE
FG	FINISH GRADE	TP	TOP OF PAVEMENT
GB	GRADE BREAK	TR	TOP OF RAMP
HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

KEY MAP



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STATE OF WASHINGTON
BY: P. OLSEND
LICENSED LANDSCAPE ARCHITECT
No. 610 Exp. 02-2022
02.22.2022

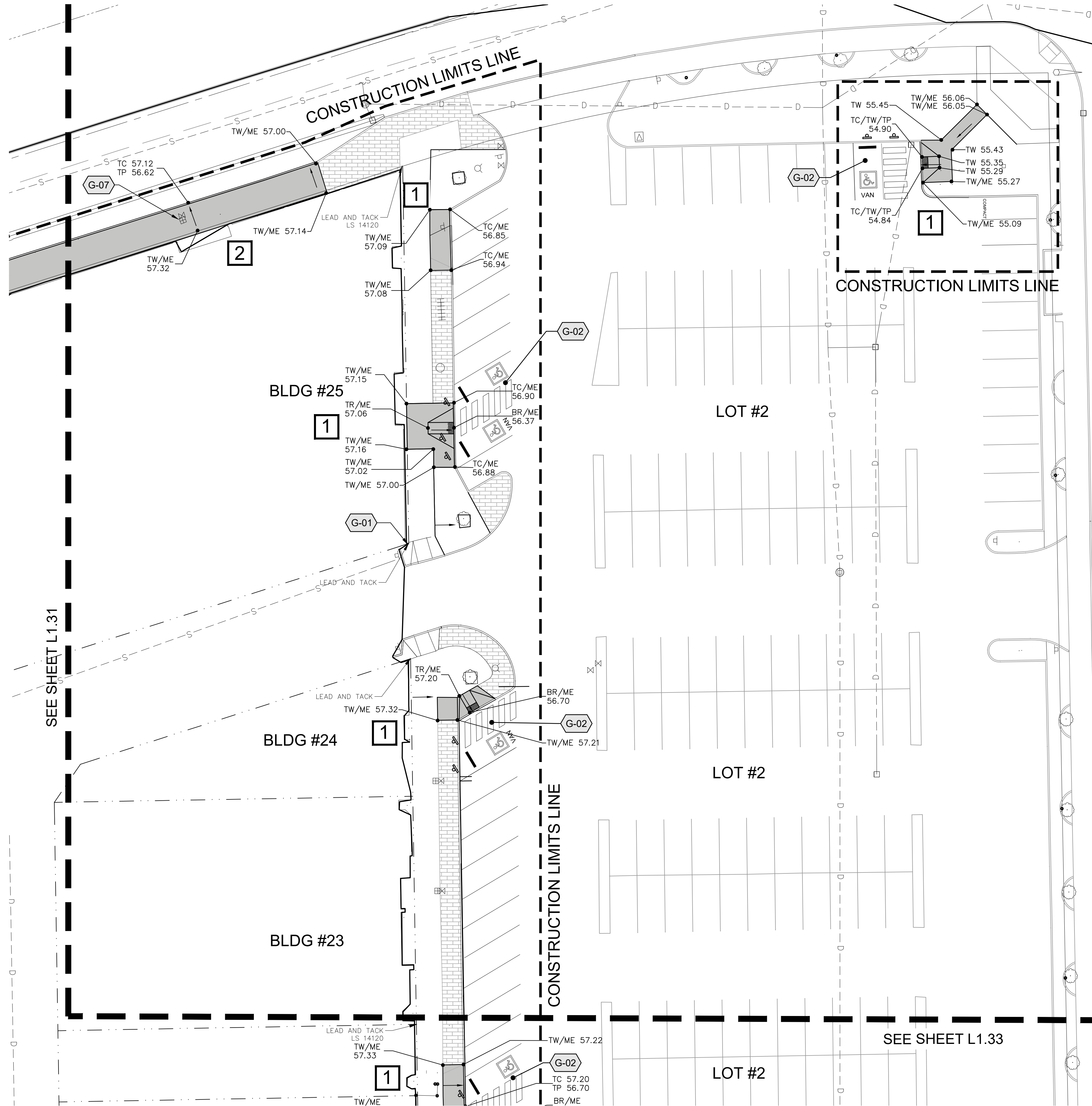
ArchitectsWest
210 E Lakeside Ave
Coeur d'Alene, ID 83814
t. 208.667.9402
architectswest.com

LANDSCAPE ARCHITECT
ARCHITECTS WEST INC.
210 E. LAKESIDE AVENUE
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(208) 667-9402

SURVEYOR
AHBL
5804 ROAD 80, SUITE H
PASCO, WA 99301
(509) 380-5883-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 1

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.
L1.31



LEGEND

- 804.02 EXISTING SPOT ELEVATION
- ← 2.55% DIRECTION OF SLOPE & PERCENT IF SHOWN
- TW 29.5
TP 26.5 PROPOSED SPOT ELEVATION
- 0% GRADE BREAK
- CONSTRUCTION LIMITS
- PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING. STAKING SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR WITHIN THE STATE.
2. CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS NOTED ON THIS PLAN.
3. GRADES SHOWN ARE FINISH GRADES.
4. ALL FINISH GRADES SHALL BE SMOOTH AND UNIFORM.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND EXTERIOR PROPERTIES.
6. PROVIDE POSITIVE DRAINAGE TO DRAINAGE STRUCTURES.
7. MINIMUM OF 1.5% CROSS SLOPE ON CONCRETE FLATWORK UNLESS OTHERWISE NOTED.
8. WHERE PROPOSED GRADES MEET EXISTING, SAVE AND PROTECT EXISTING MATERIAL TO GREATEST EXTENT POSSIBLE. MINOR GRADE CHANGES IN THESE EDGE AREAS ARE ACCEPTABLE.
9. CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.
10. ADD 300' TO ALL SPOT ELEVATIONS.

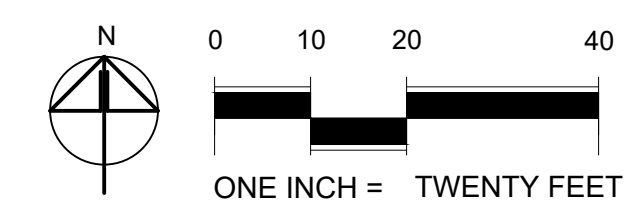
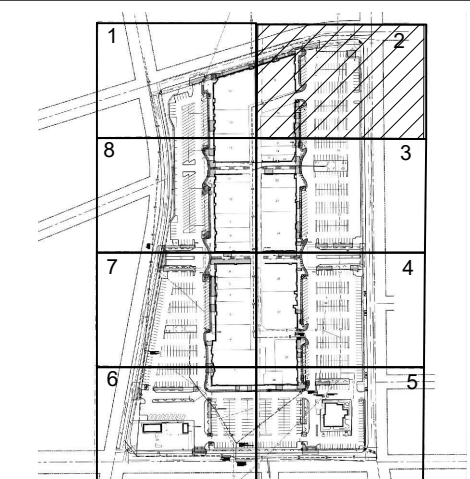
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L.1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L.1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L.1.40
G-07	ADJUST UTILITIY BOX ELEVATIONS AS REQUIRED TO MAKE FLUSH WITH NEW CONCRETE FLATWORK, TYP.	

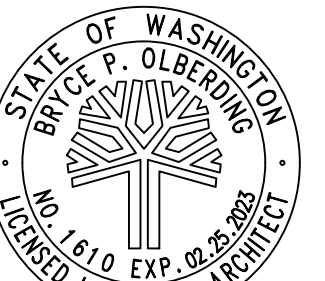
ABBREVIATION LEGEND

BB	BOTTOM OF BASIN	MH	MANHOLE
BD	BOTTOM OF DRAIN	RWL	RAINWATER LEADER
BS	BOTTOM OF STEP	SB	SPLASH BLOCK
BG	BOTTOM OF GUTTER	SE	SOIL ELEVATION
BRW	FINISH GRADE ADJACENT TO BOTTOM OF RETAINING WALL	SG	SUBGRADE ELEVATION
CI	CURB INLET	TD	TOP OF DRAIN
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FFE	FINISHED FLOOR ELEVATION	TG	TOP OF GRATE
FG	FINISH GRADE	TP	TOP OF PAVEMENT
GB	GRADE BREAK	TR	TOP OF RAMP
HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

KEY MAP



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Bryce P. Oldenring
02.22.2022



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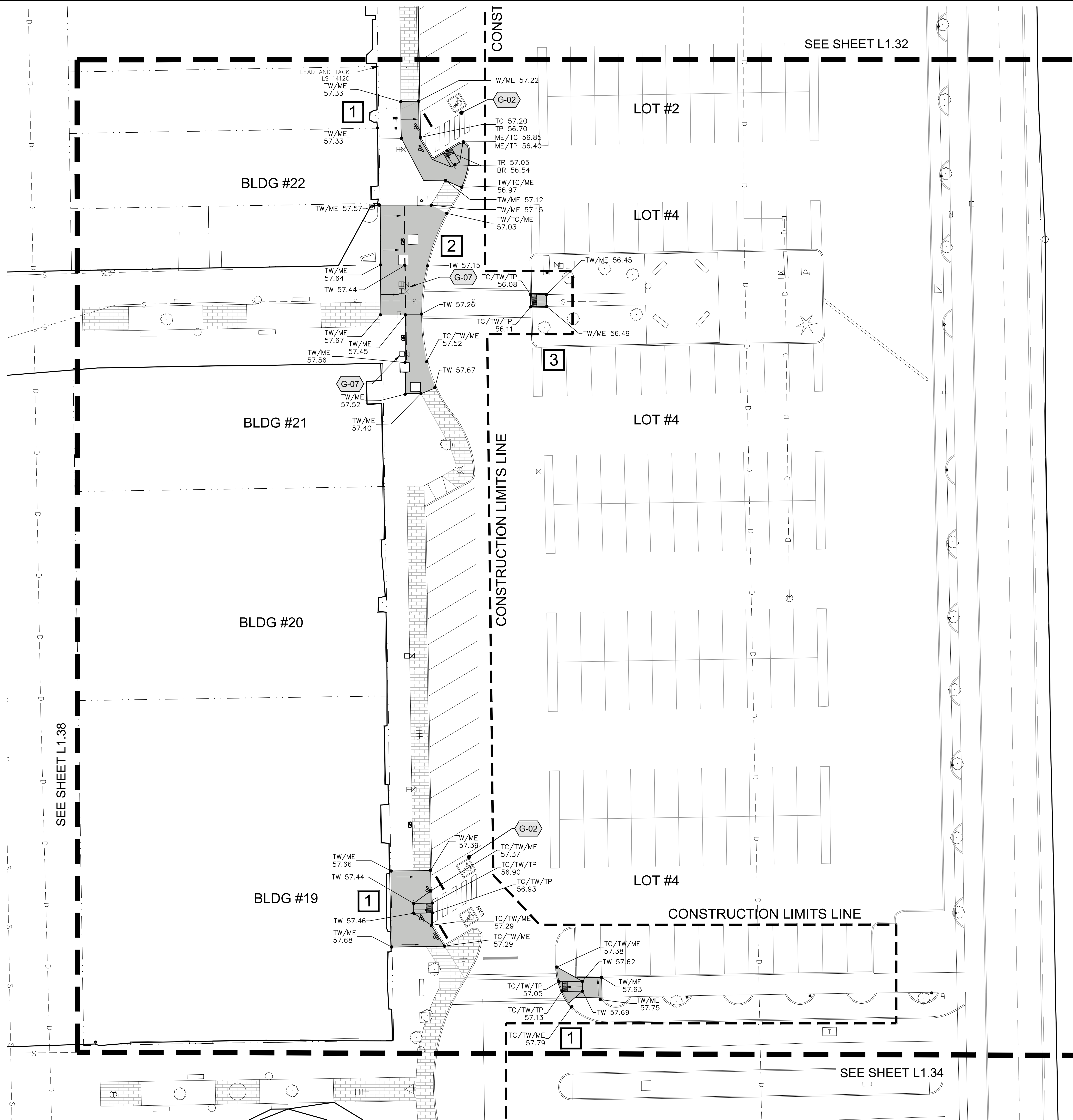
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SURVEYOR
AHBL
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(509) 380-5863-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 2

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.32



LEGEND

- 804.02 EXISTING SPOT ELEVATION
- ← 2.55% DIRECTION OF SLOPE & PERCENT IF SHOWN
- TW 29.5
TP 26.5 PROPOSED SPOT ELEVATION
- G — GRADE BREAK
- CONSTRUCTION LIMITS — CONSTRUCTION LIMITS
- PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING. STAKING SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR WITHIN THE STATE.
2. CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS NOTED ON THIS PLAN.
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6. PROVIDE POSITIVE DRAINAGE TO DRAINAGE STRUCTURES.
7. MINIMUM OF 1.5% CROSS SLOPE ON CONCRETE FLATWORK UNLESS OTHERWISE NOTED.
8. WHERE PROPOSED GRADES MEET EXISTING, SAVE AND PROTECT EXISTING MATERIAL TO GREATEST EXTENT POSSIBLE. MINOR GRADE CHANGES IN THESE EDGE AREAS ARE ACCEPTABLE.
9. CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.
10. ADD 300' TO ALL SPOT ELEVATIONS.

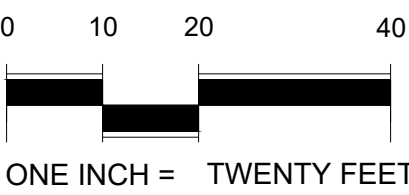
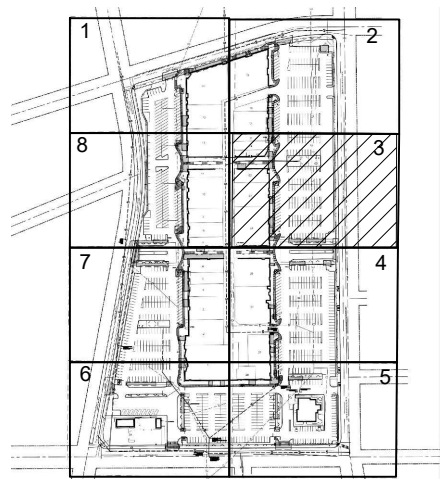
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L1.40
G-07	ADJUST UTILTY BOX ELEVATIONS AS REQUIRED TO MAKE FLUSH WITH NEW CONCRETE FLATWORK, TYP.	

ABBREVIATION LEGEND

BB	BOTTOM OF BASIN	MH	MANHOLE
BD	BOTTOM OF DRAIN	RWL	RAINWATER LEADER
BS	BOTTOM OF STEP	SB	SPLASH BLOCK
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CI	CURB INLET	TD	TOP OF DRAIN
DW	DRYWELL	TBC	TOP OF BASE COURSE
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FFE	FINISHED FLOOR ELEVATION	TG	TOP OF GRATE
FG	FINISH GRADE	TP	TOP OF PAVEMENT
GB	GRADE BREAK	TR	TOP OF RAMP
HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

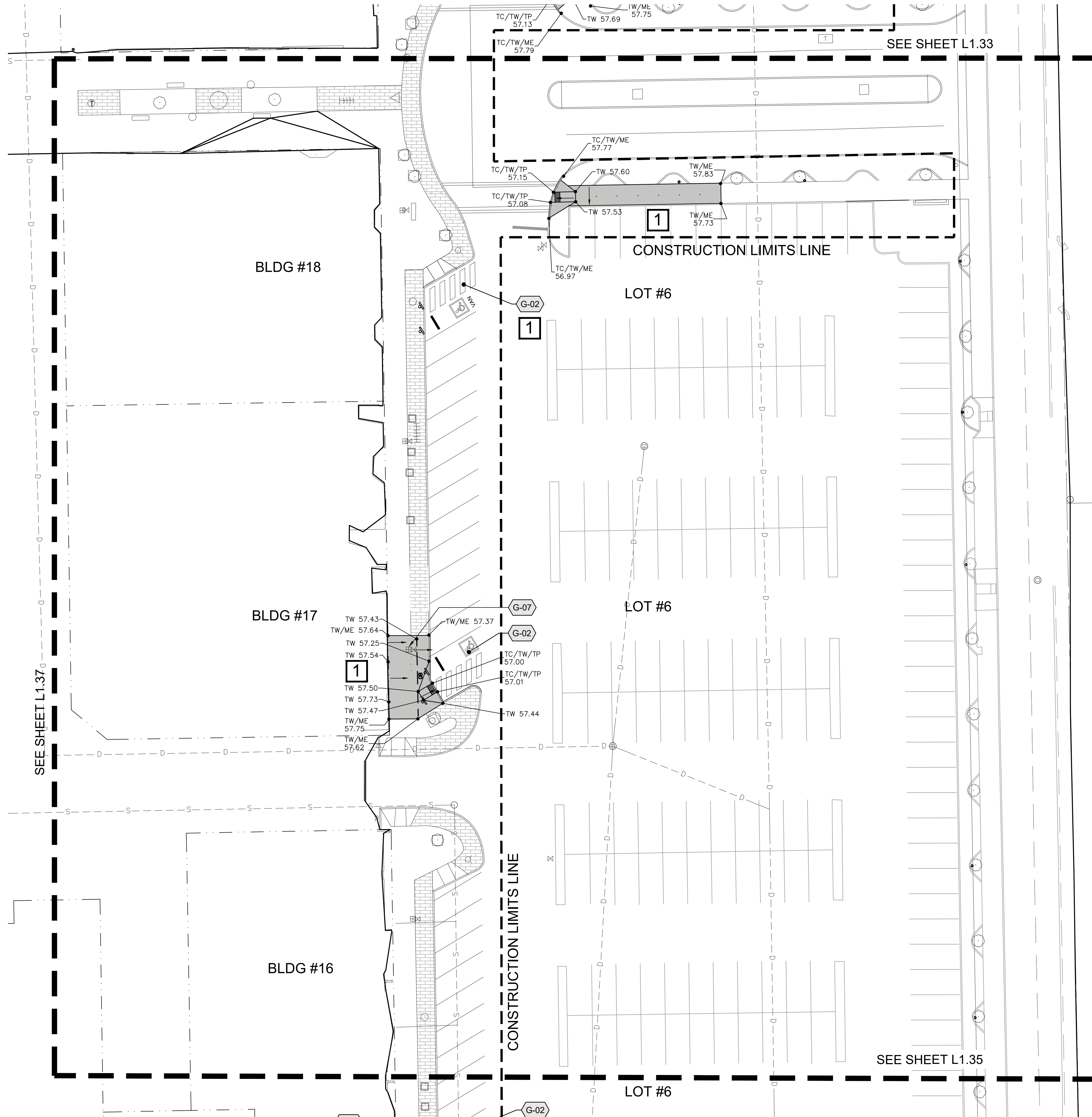
KEY MAP



CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 3

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.33



LEGEND

- 804.02 EXISTING SPOT ELEVATION
- ← 2.55% DIRECTION OF SLOPE & PERCENT IF SHOWN
- TW 29.5
TP 26.5 PROPOSED SPOT ELEVATION
- G8 — GRADE BREAK
- CONSTRUCTION LIMITS LINE — CONSTRUCTION LIMITS
- PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

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9. CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.
10. ADD 300' TO ALL SPOT ELEVATIONS.

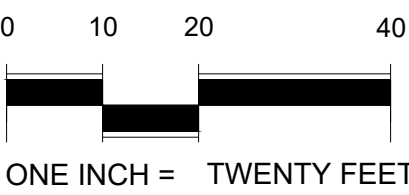
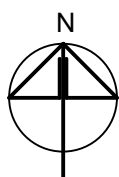
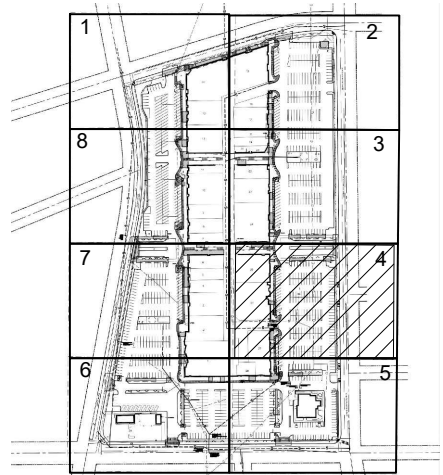
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L1.40
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ABBREVIATION LEGEND

BB	BOTTOM OF BASIN	MH	MANHOLE
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HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

KEY MAP



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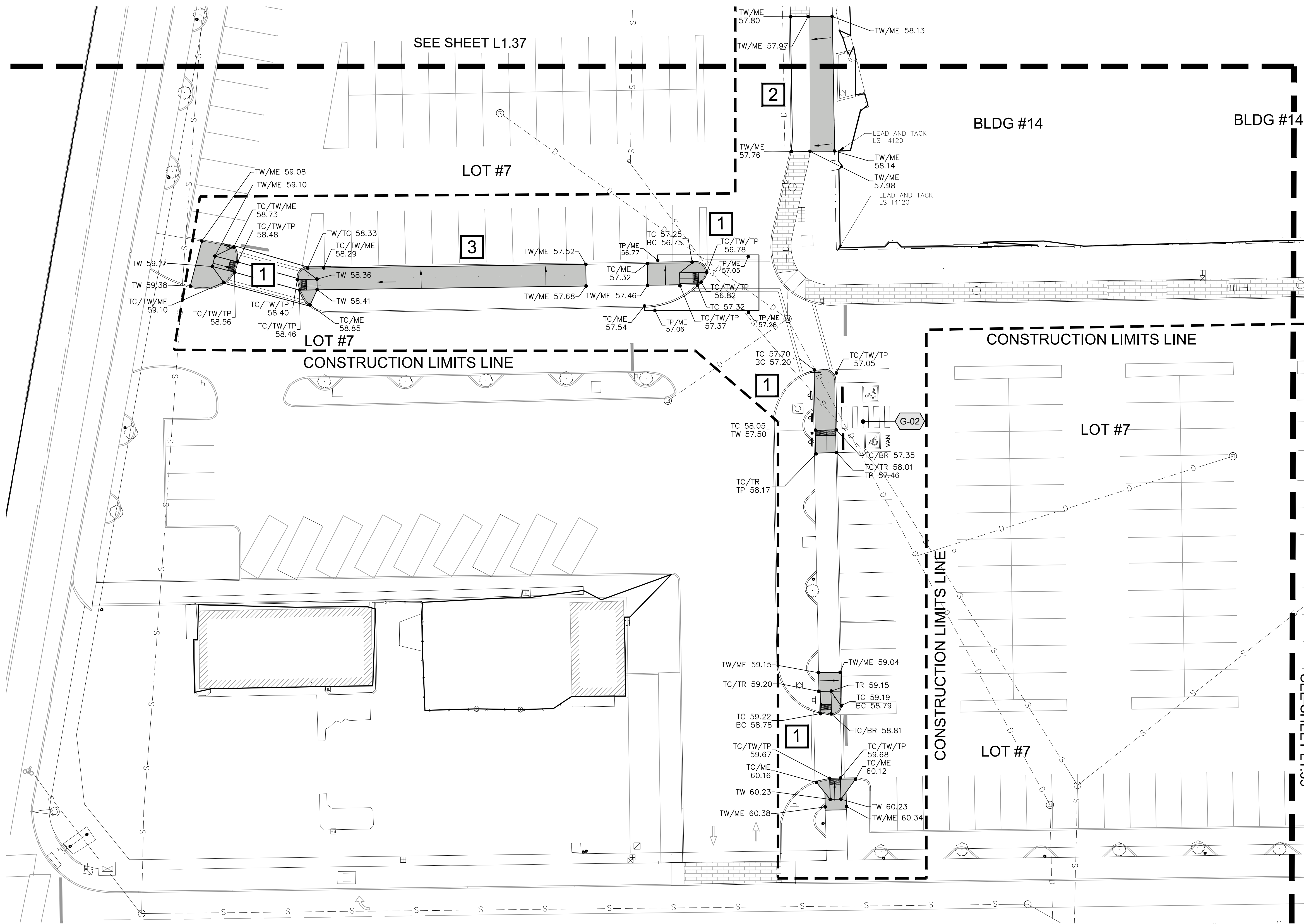
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(208) 667-9402

SURVEYOR
AHBL
5804 ROAD 80, SUITE H
PASCO, WA 99301
(509) 380-5863-9402

CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 4

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.34



LEGEND

- EXISTING SPOT ELEVATION
DIRECTION OF SLOPE & PERCENT IF SHOWN
PROPOSED SPOT ELEVATION
GRADE BREAK
CONSTRUCTION LIMITS
- PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
3 - THIRD PHASE

GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION STAKING. STAKING SHALL BE PERFORMED BY A REGISTERED LAND SURVEYOR WITHIN THE STATE.
- CONTRACTOR TO VERIFY ALL EXISTING ELEVATIONS NOTED ON THIS PLAN.
- GRADES SHOWN ARE FINISH GRADES.
- ALL FINISH GRADES SHALL BE SMOOTH AND UNIFORM.
- PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND EXTERIOR PROPERTIES.
- PROVIDE POSITIVE DRAINAGE TO DRAINAGE STRUCTURES.
- MINIMUM OF 1.5% CROSS SLOPE ON CONCRETE FLATWORK UNLESS OTHERWISE NOTED.
- WHERE PROPOSED GRADES MEET EXISTING, SAVE AND PROTECT EXISTING MATERIAL TO GREATEST EXTENT POSSIBLE. MINOR GRADE CHANGES IN THESE EDGE AREAS ARE ACCEPTABLE.
- CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.
- ADD 300' TO ALL SPOT ELEVATIONS.

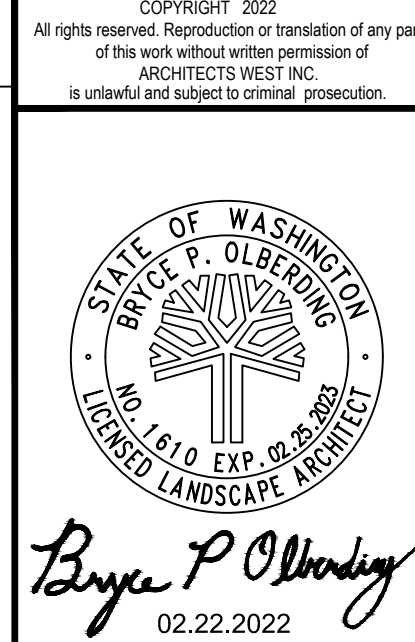
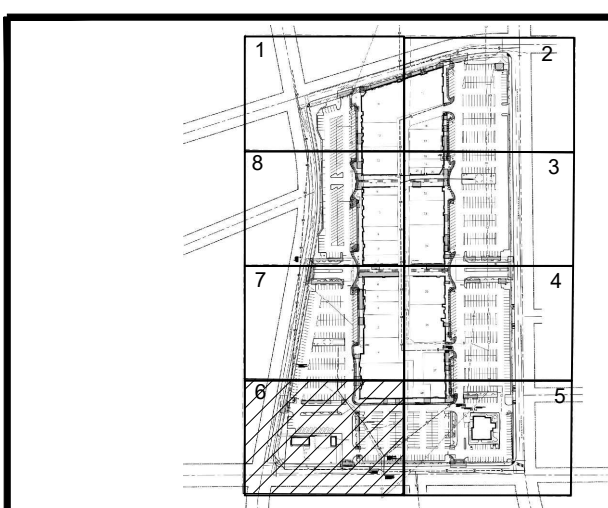
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L.1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L.1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L.1.40
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ABBREVIATION LEGEND

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IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

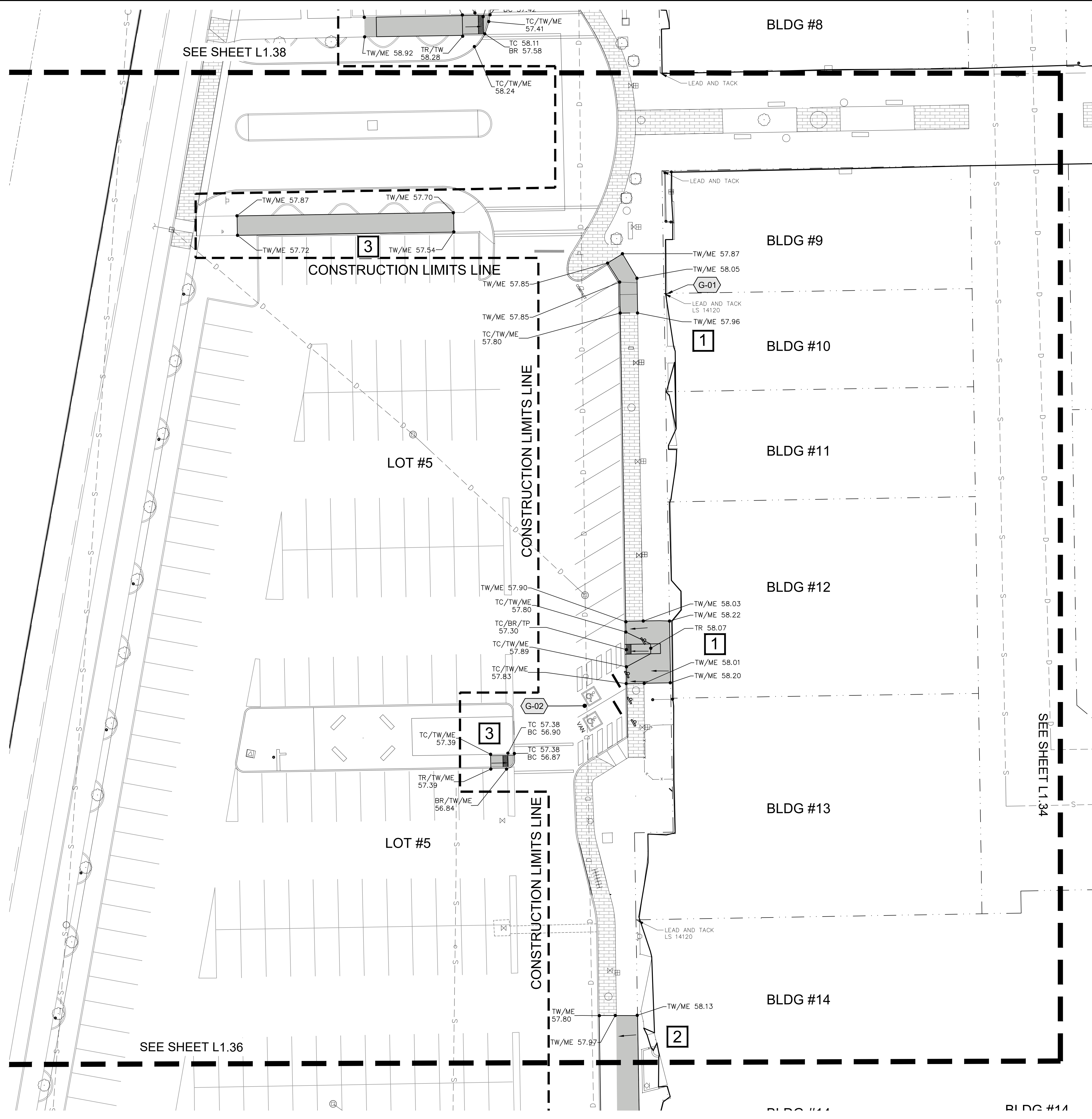
KEY MAP



CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 6

PROJECT NO.	21025
DESIGNED BY	MP/DG
DRAWN BY	MP/DG
ISSUE DATE	02/22/2022
PHASE	BID / PERMIT SET
CHECKED BY	BO
REVISION	
SHEET NO.	

L1.36



LEGEND

• 804.02

2.55%

• TW 29.5

TP 26.5

— 0.0

CONSTRUCTION LIMITS

EXISTING SPOT ELEVATION

DIRECTION OF SLOPE & PERCENT IF SHOWN

PROPOSED SPOT ELEVATION

GRADE BREAK

CONSTRUCTION LIMITS

PHASING:

1 - FIRST PHASE

2 - SECOND PHASE

3 - THIRD PHASE

GENERAL NOTES

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3. GRADES SHOWN ARE FINISH GRADES.

4. ALL FINISH GRADES SHALL BE SMOOTH AND UNIFORM.

5. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING AND EXTERIOR PROPERTIES.

6. PROVIDE POSITIVE DRAINAGE TO DRAINAGE STRUCTURES.

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9. CONTRACTOR SHALL CLEAN ALL CHANNEL DRAINS, CATCH BASINS AND PIPING PRIOR TO PUNCH LIST INSPECTION.

10. ADD 300' TO ALL SPOT ELEVATIONS.

GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
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IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

KEY MAP

N

0 10 20 40

ONE INCH = TWENTY FEET

CITY OF RICHLAND

UPTOWN PARKING LOT

1317 GEORGE WASHINGTON WAY RICHLAND, WA

GRADING PLAN - AREA 7

PROJECT NO. 21025

DESIGNED BY MP/DG

DRAWN BY MP/DG

ISSUE DATE 02/22/2022

PHASE BID / PERMIT SET

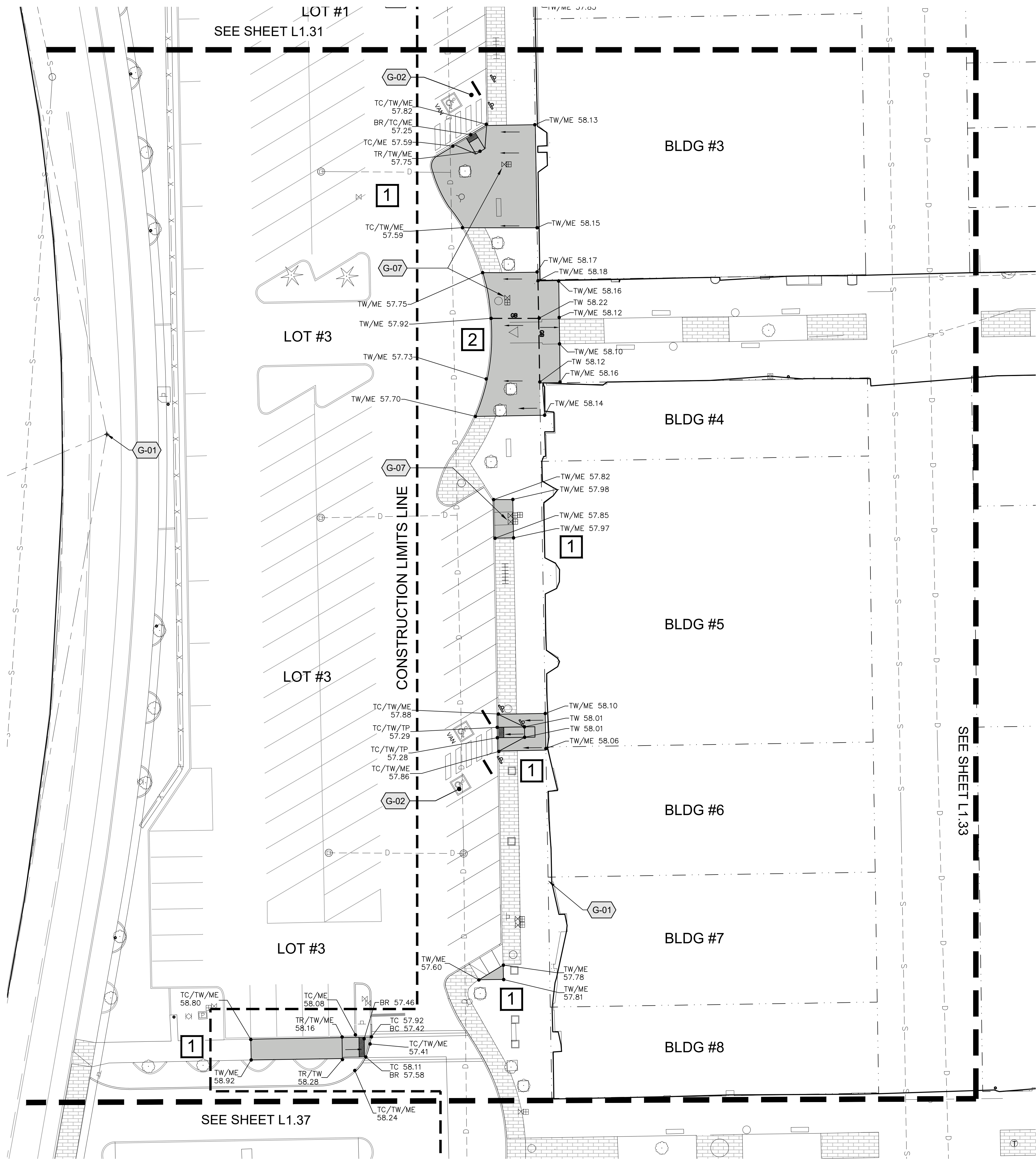
CHECKED BY BO

REVISION

SHEET NO.

L1.37

S:\21025 Richland Uptown Lot ADA\05 Design\03 Site\L1.30_Grading Plan.dwg plotted by: dolog on Wed, February 16 2022 at 02:39 PM



LEGEND

- EXISTING SPOT ELEVATION
DIRECTION OF SLOPE & PERCENT IF SHOWN
PROPOSED SPOT ELEVATION
GRADE BREAK
CONSTRUCTION LIMITS
- PHASING:
1 - FIRST PHASE
2 - SECOND PHASE
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- ADD 300' TO ALL SPOT ELEVATIONS.

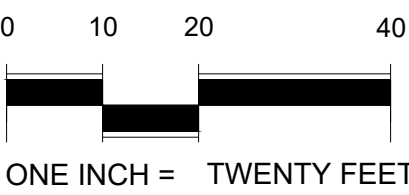
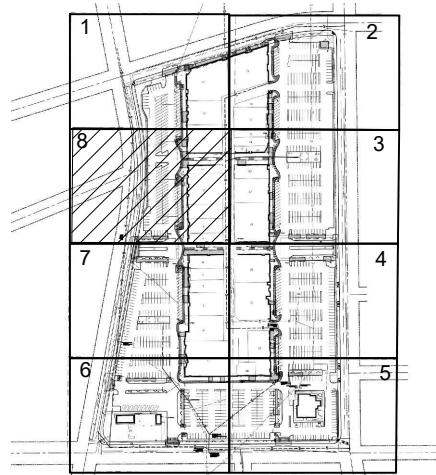
GRADING KEYED NOTES

SYMBOL	DESCRIPTION	DETAIL
G-01	ESTABLISH BENCHMARK AT EXISTING SET MONUMENTS / LEAD & TACKS PER AHBL SURVEY DATED 6/23/21	
G-02	MAXIMUM SLOPE WITHIN ADA STALLS AND AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.	
G-03	TRANSITION CURB FROM FLUSH TO 6" EXPOSED PER DETAIL	6/L1.41
G-04	TOP OF CURB FLUSH WITH ASPHALT	
G-05	SAVE AND PROTECT EXISTING TREES. AVOID DAMAGING ROOTS/LIMBS AND AVOID COMPACTING SOIL.	6/L1.40
G-06	MAXIMUM SLOPE ON CONCRETE NOT TO EXCEED 2% IN ANY DIRECTION.	1/L1.40
G-07	ADJUST UTILITIY BOX ELEVATIONS AS REQUIRED TO MAKE FLUSH WITH NEW CONCRETE FLATWORK, TYP.	

ABBREVIATION LEGEND

BB	BOTTOM OF BASIN	MH	MANHOLE
BD	BOTTOM OF DRAIN	RWL	RAINWATER LEADER
BS	BOTTOM OF STEP	SB	SPLASH BLOCK
BG	BOTTOM OF GUTTER	SE	SOIL ELEVATION
BRW	FINISH GRADE ADJACENT TO BOTTOM OF RETAINING WALL	SG	SUBGRADE ELEVATION
CI	CURB INLET	TD	TOP OF DRAIN
DW	DRYWELL	TBC	TOP OF BASE COURSE
FL	FLOW LINE - DITCH/PAVEMENT	TC	TOP FACE OF CURB
FFE	FINISHED FLOOR ELEVATION	TG	TOP OF GRATE
FG	FINISH GRADE	TP	TOP OF PAVEMENT
GB	GRADE BREAK	TR	TOP OF RAMP
HP	HIGH POINT	TS	TOP OF STEP
LP	LOW POINT	TRW	TOP OF RETAINING WALL BLOCK
IEO	INVERT ELEVATION OUT	TW	TOP OF WALK
ME	MATCH EXISTING (+/-)	TOW	TOP OF WALL

KEY MAP



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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
GRADING PLAN - AREA 8

PROJECT NO. 21025
DESIGNED BY MP/DG
DRAWN BY MP/DG
ISSUE DATE 02/22/2022
PHASE BID / PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.
L1.38

FINISH SURFACE PER PLANS

12" x 18" SIGN WITH INTERNATIONAL SYMBOL OF ACCESS. REFER TO ACCESSIBLE PARKING SIGN DETAIL FOR MORE INFORMATION. TYPICAL AT ALL ACCESSIBLE STALLS.

ACCESSIBLE PARKING AISLE PER PLAN. TYPICAL 8'-0" FOR VAN, MIN. WIDTH 5'-0" FOR ALL NON-VAN STALLS.

RAMP PER PLANS AND DETAILS

STALL STRIPING AS SPECIFIED, TYPICAL

INTERNATIONAL SYMBOL OF ACCESS PAINTED ON PAVING. SYMBOL AND BORDER SHALL BE WHITE. INSIDE BORDER SHALL BE BLUE, AND AISLES SHALL BE WHITE

'NO PARKING' SIGN AT HEAD OF ALL 'VAN ACCESSIBLE' ACCESS AISLES

12" x 18" SIGN WITH INTERNATIONAL SYMBOL OF ACCESS AND SEPARATE 'VAN ACCESSIBLE' SIGN. REFER TO ACCESSIBLE PARKING SIGN DETAIL. THIS SHEET FOR MORE INFORMATION. TYPICAL AT ALL 'VAN' ACCESSIBLE STALLS.

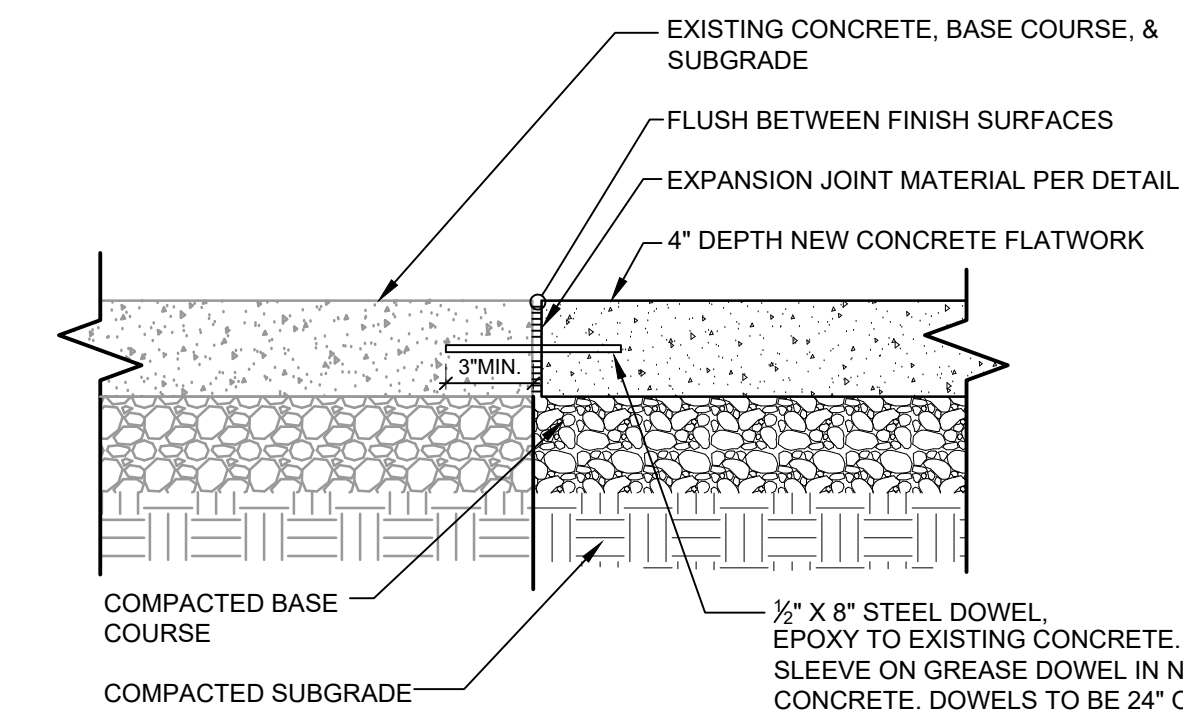
CONCRETE WHEELSTOP AT FLUSH CURB LOCATIONS, TYP.

NOTES:

1. REFER TO LAYOUT PLAN FOR SPECIFIC STALL LOCATIONS AND DIMENSIONS.
2. DIMENSIONS ON THE PLANS SHALL SUPERSEDE THOSE OF THE DETAIL.
3. ALL ACCESSIBLE PARKING STALLS AND SIGNS SHALL CONFORM TO ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR ACCESSIBLE PARKING.
4. AT ALL 'VAN ACCESSIBLE' STALLS, PAINT THE WORD "VAN" IN 18" HIGH LETTERS ADDITION TO THE SYMBOL.
5. OMIT SIGN POST & BASE OF 'NO PARKING' SIGN AT THE HEAD OF THE AISLE AND MOUNT SIGN ON ADJACENT BUILDING IF PERMITTED BY OWNER.

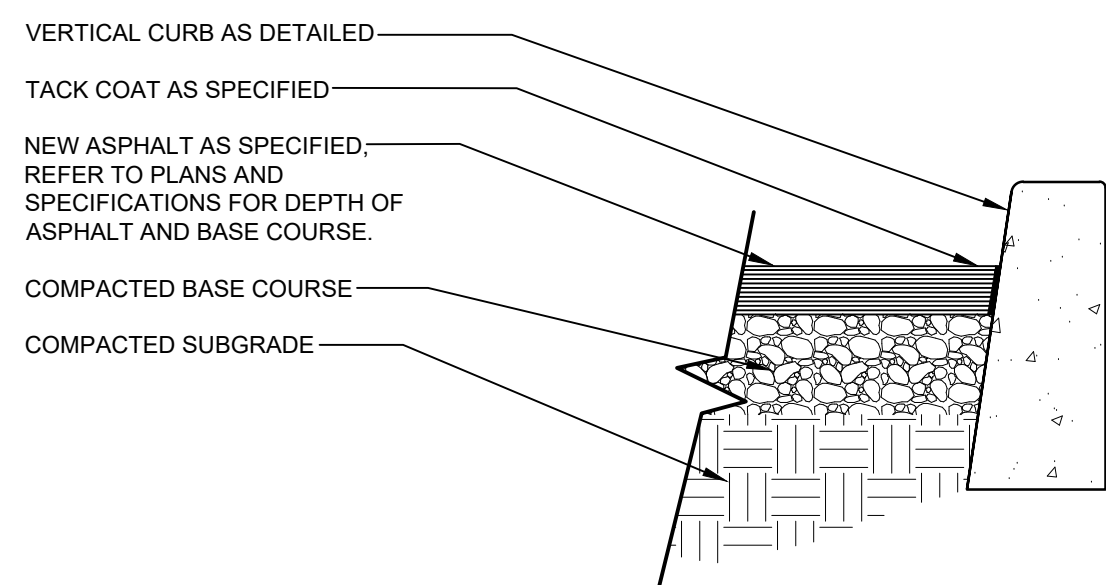
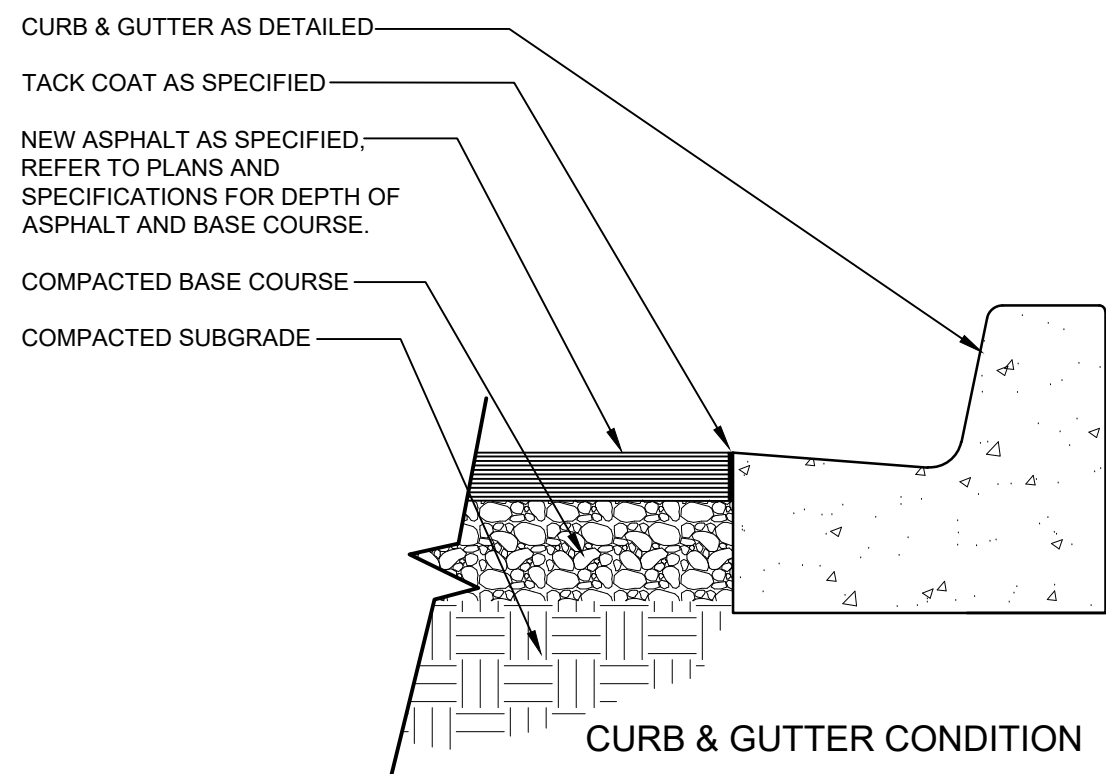
1 ADA STALL LAYOUT

1" = 10'



2 NEW CONCRETE MEETS EXISTING CONCRETE

1 1/2" = 1'-0"

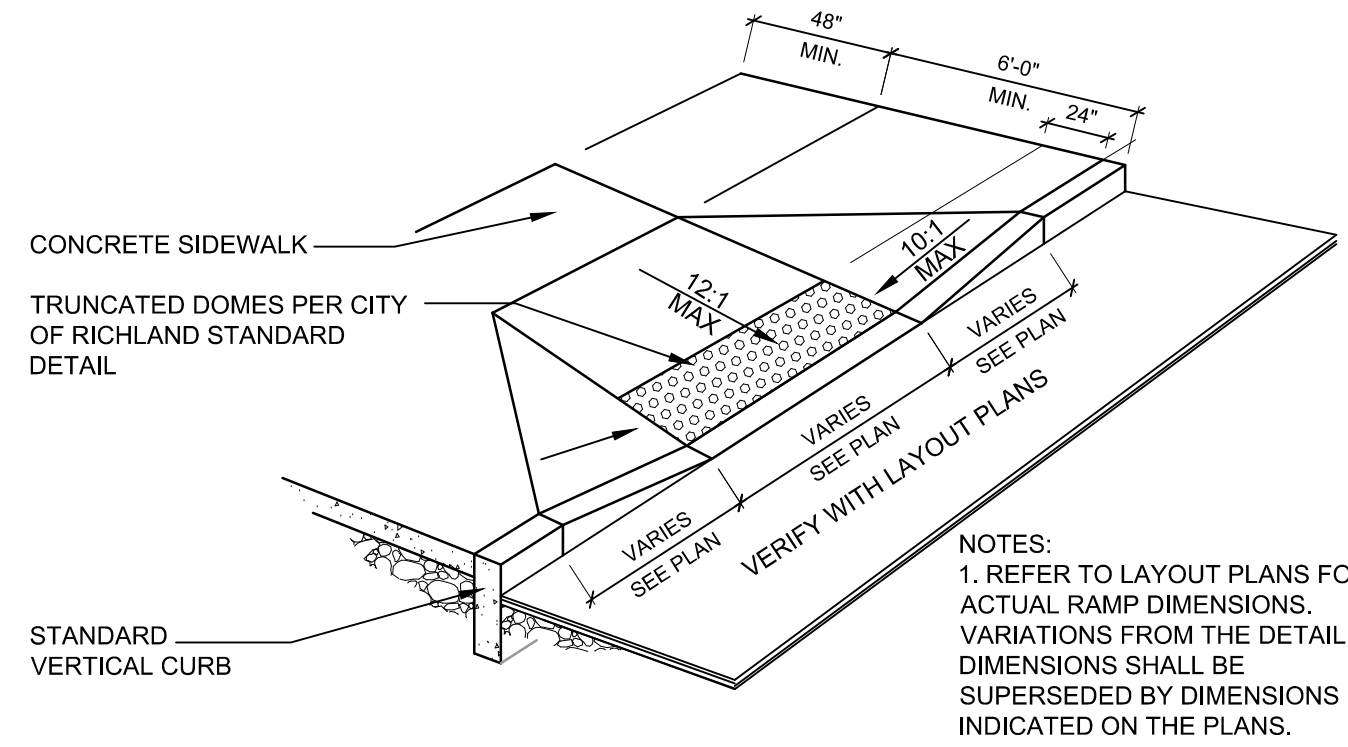


NOTES:

1. REFER TO PLAN FOR LOCATIONS.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. REFER TO GEO-TECH REPORT FOR LIGHT DUTY AND HEAVY DUTY SECTION THICKNESSES

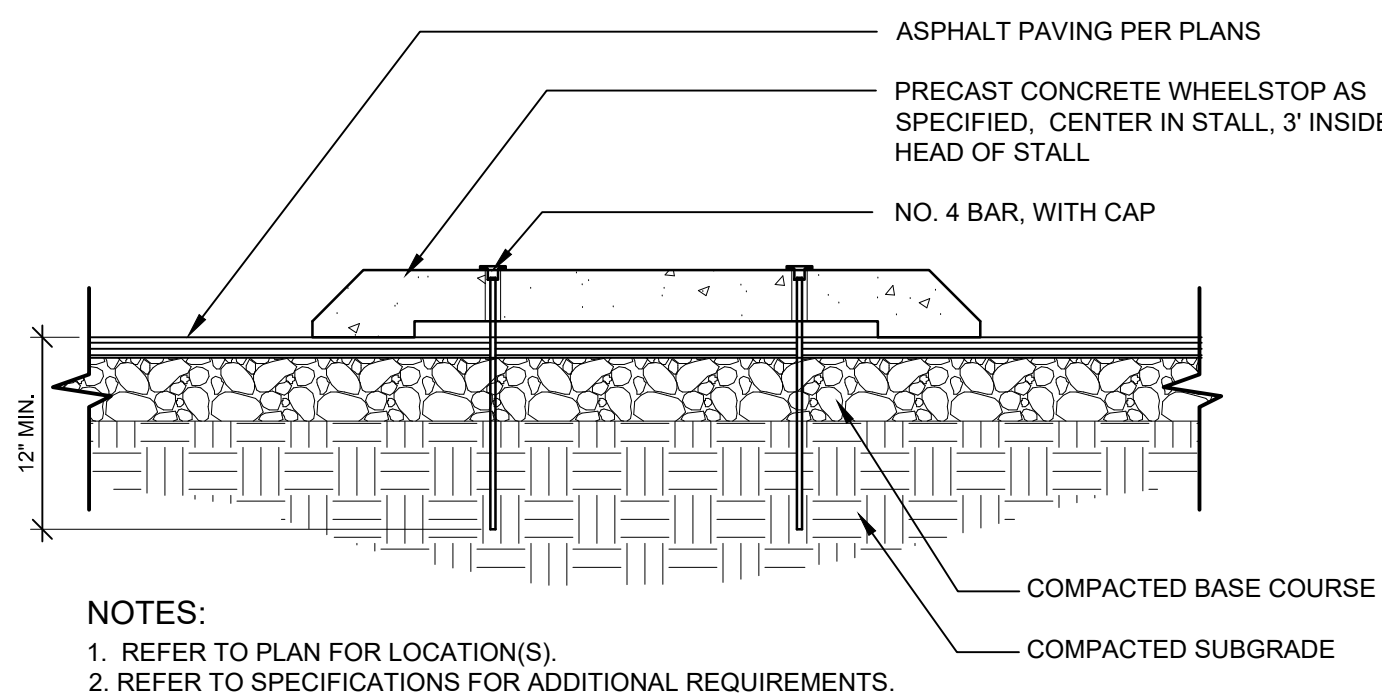
7 ASPHALT PAVING

1" = 1'-0"



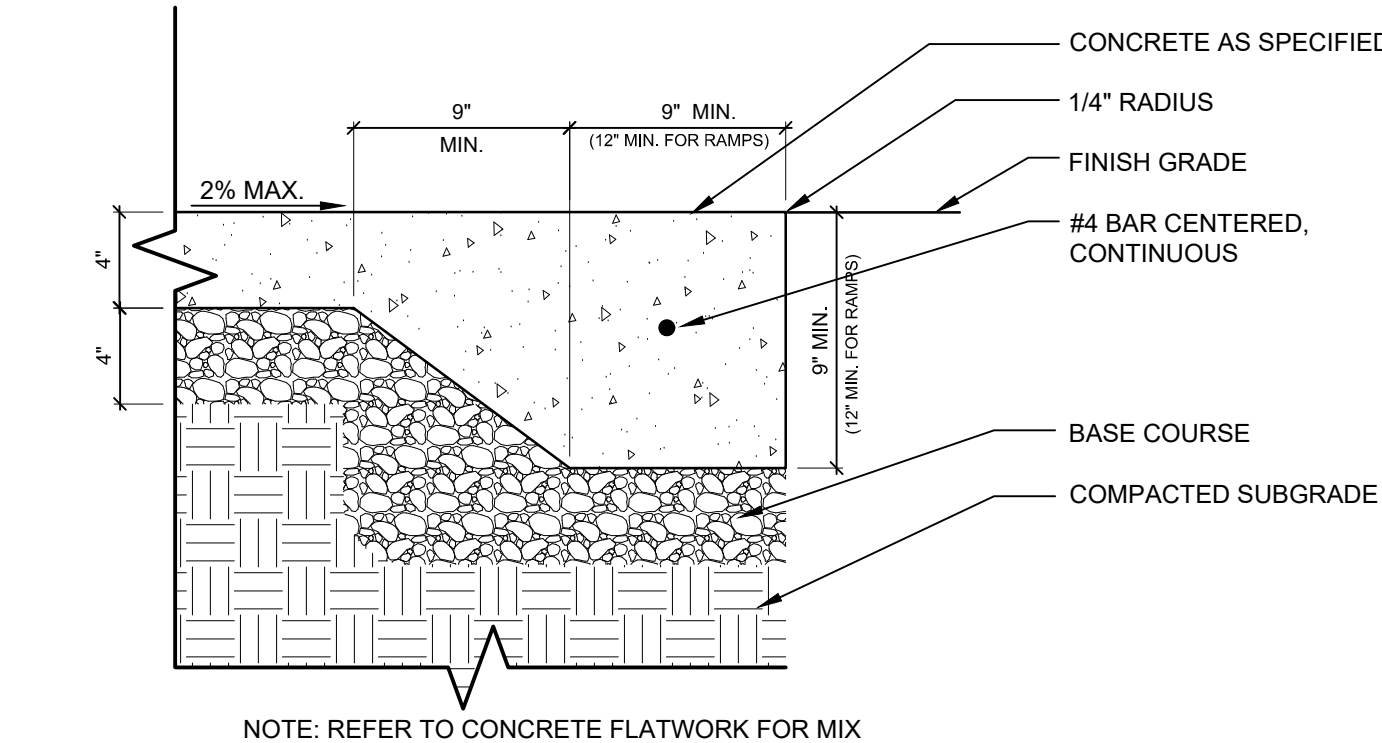
3 CURB CUT RAMP - TYPE I

NTS



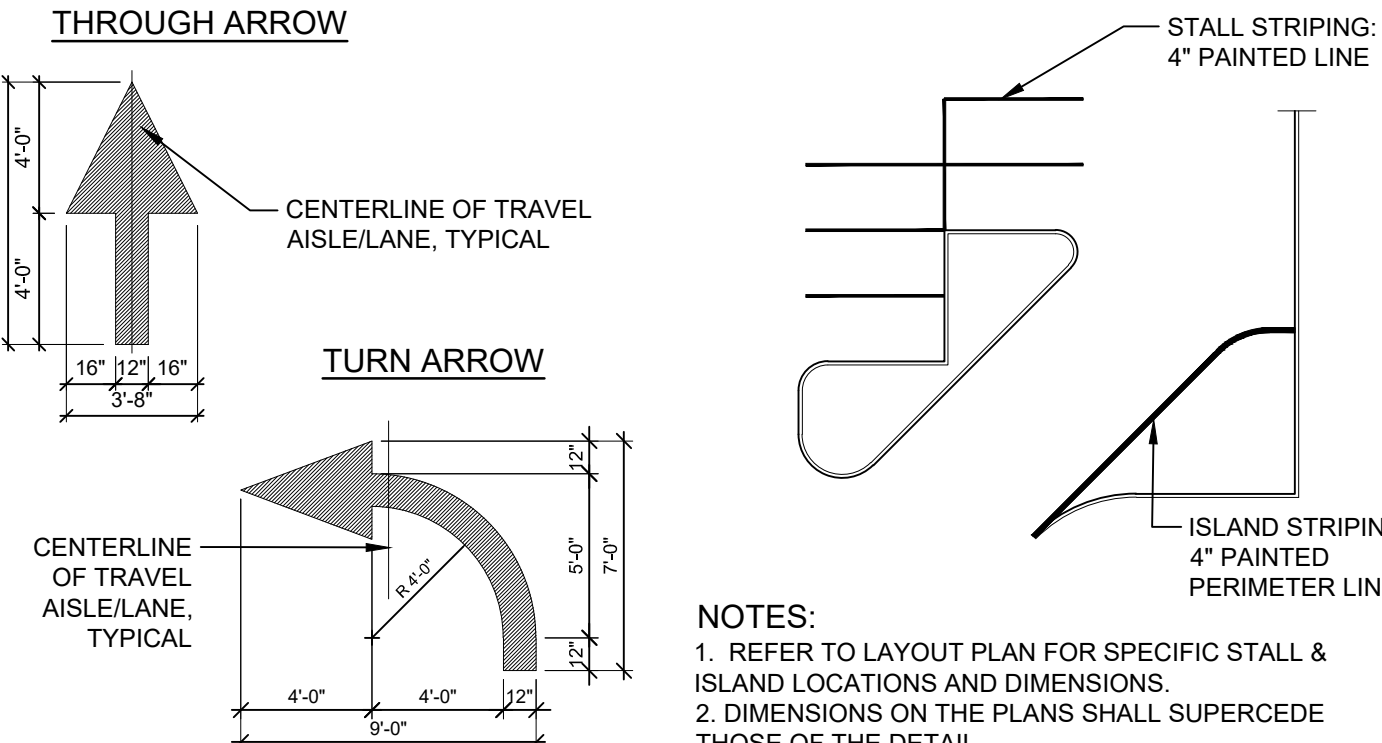
4 CONCRETE WHEEL STOP

NTS



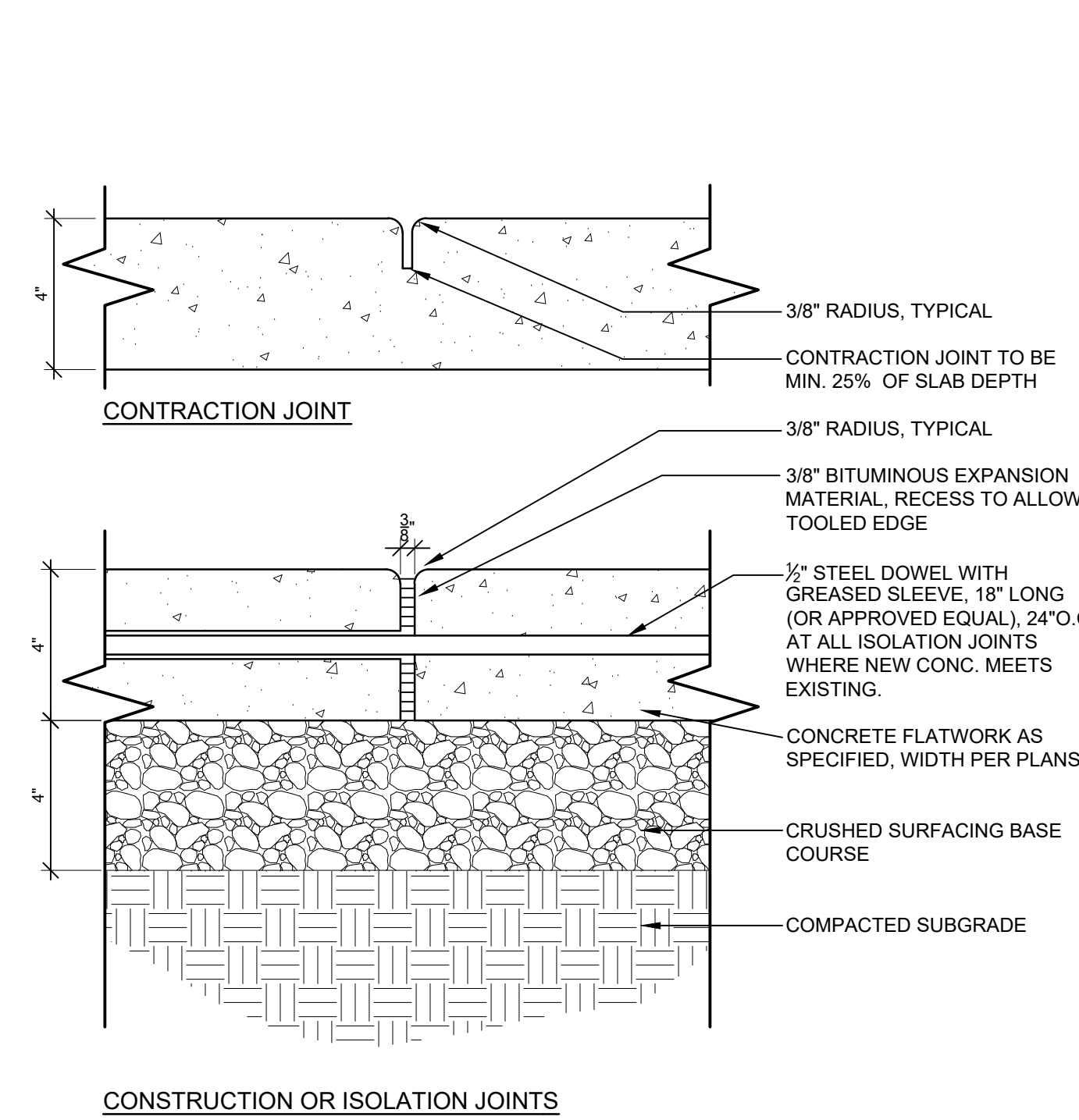
8 THICKENED EDGE CONCRETE

1 1/2" = 1'-0"



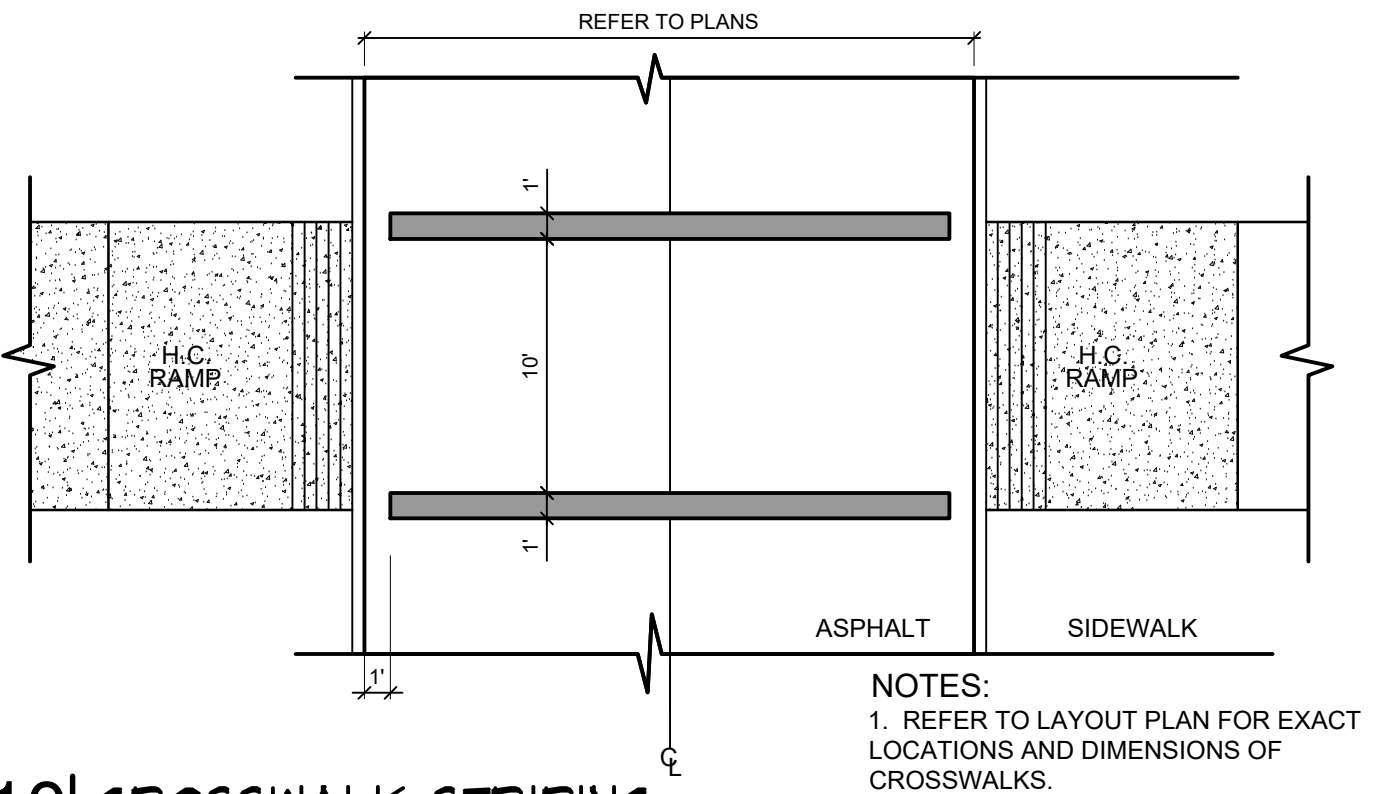
9 PARKING LOT STRIPING

NTS



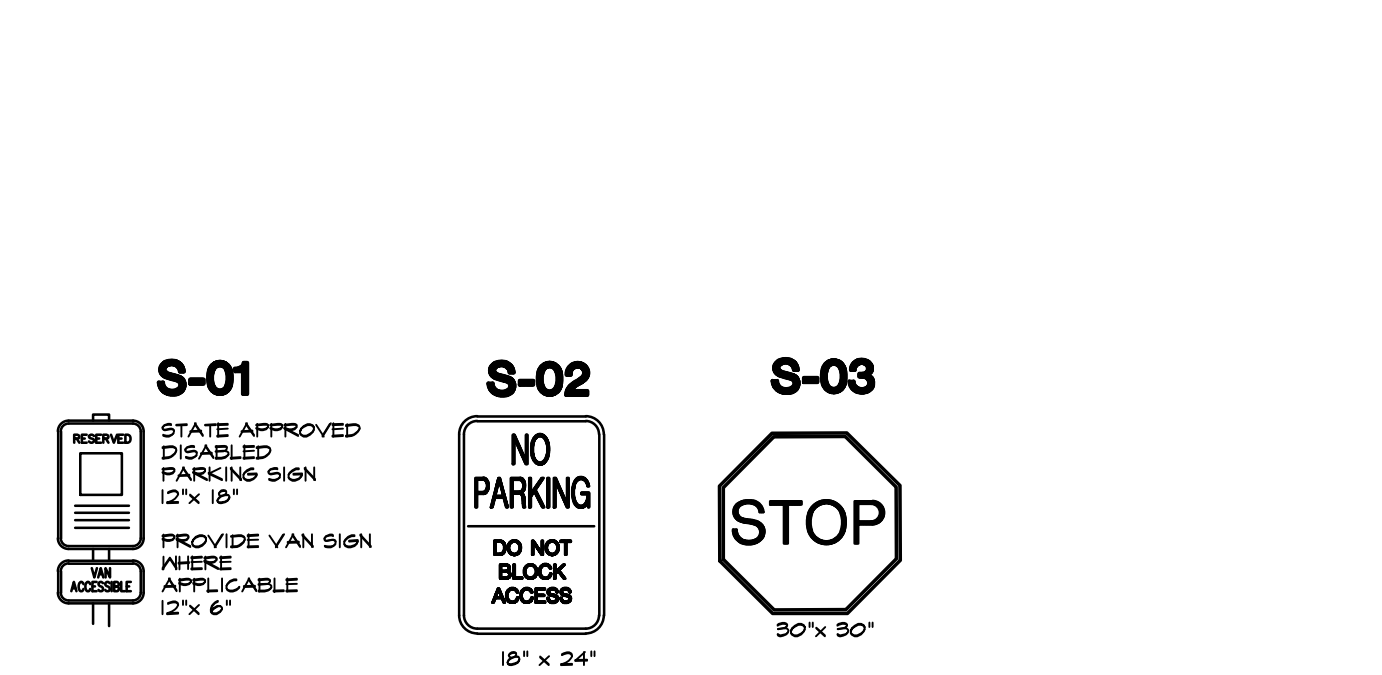
5 CONCRETE FLATWORK/EXPANSION JOINT

3" = 1'-0"



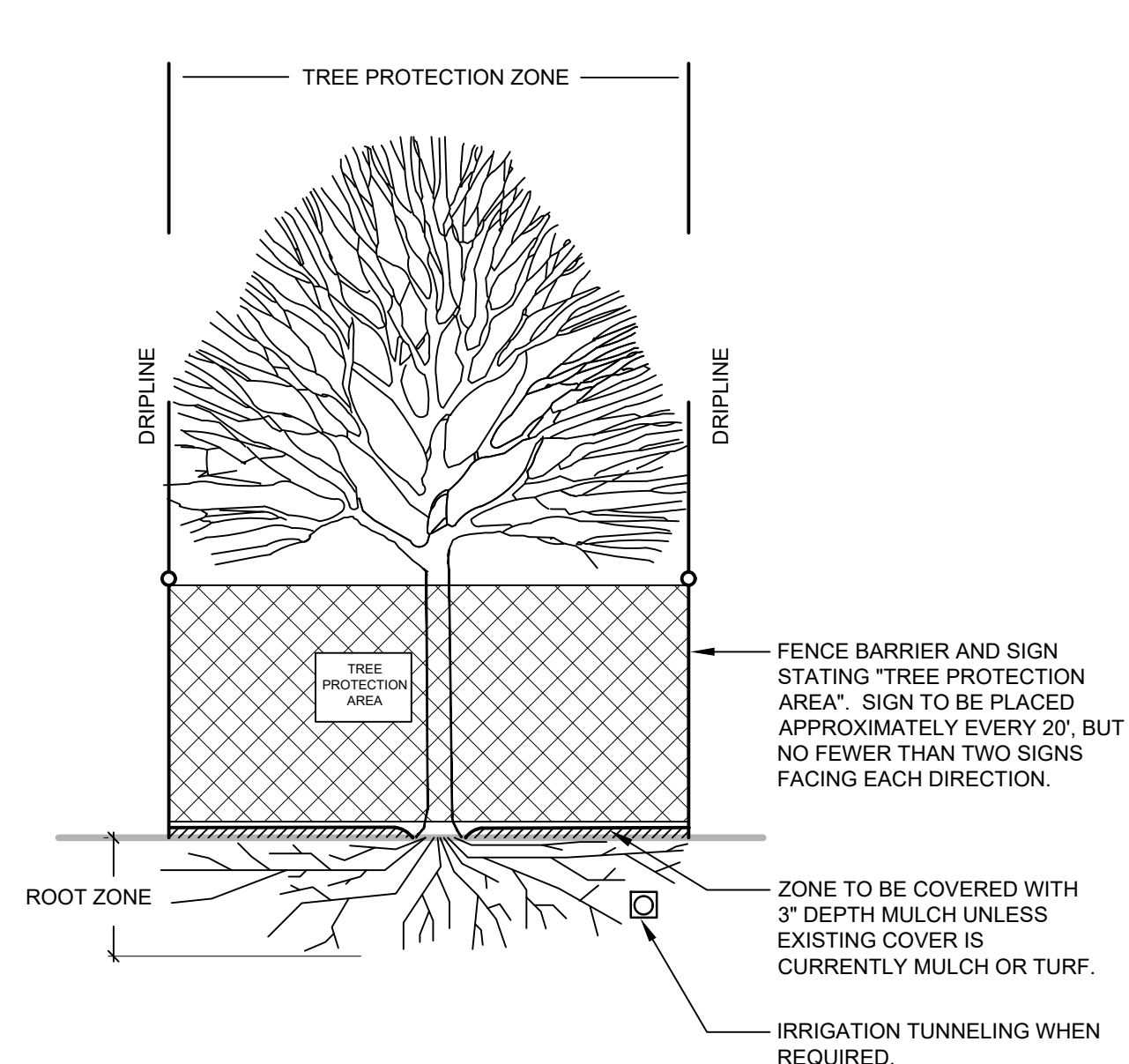
10 CROSSWALK STRIPING

NTS



11 SIGNAGE LEGEND

NTS



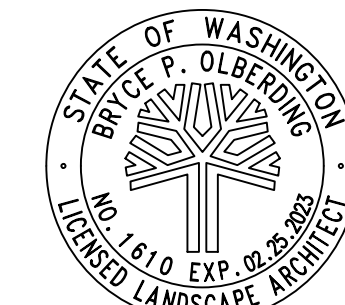
NOTES:

1. CONTRACTOR SHALL KEEP TREE PROTECTION ROOT ZONE MOIST AT ALL TIMES. COORDINATE WITH OWNER AND WATER AS REQUIRED.
2. NO CHEMICALS, EQUIPMENT, OR OTHER DETRIMENTAL ACTIVITIES SHALL BE ALLOWED WITHIN THE FENCED AREA UNLESS APPROVED BY LANDSCAPE ARCHITECT.
3. WHEN CONSTRUCTION ACTIVITIES ARE APPROVED WITHIN TREE PROTECTION ZONE, THE FOLLOWING PRECAUTIONS MUST BE FOLLOWED:
 - 6" DEPTH MULCH OR SHREDDED WOOD CHIPS AND 3/4" PLYWOOD PANELS FOR ALL AREAS THAT REQUIRE EQUIPMENT ACCESS.
 - ROOTS TWO INCHES OR LARGER IN DIAMETER SHALL BE CUT SQUARE WITH SHARP SAW OR SHEERS.
 - IRRIGATION TRENCHES SHALL TUNNEL UNDER TREE ROOTS LARGER THAN 2" DIAMETER.
4. MAINTAIN PROTECTION ZONES FREE OF WEEDS AND TRASH

6 EXISTING TREE PROTECTION

NTS

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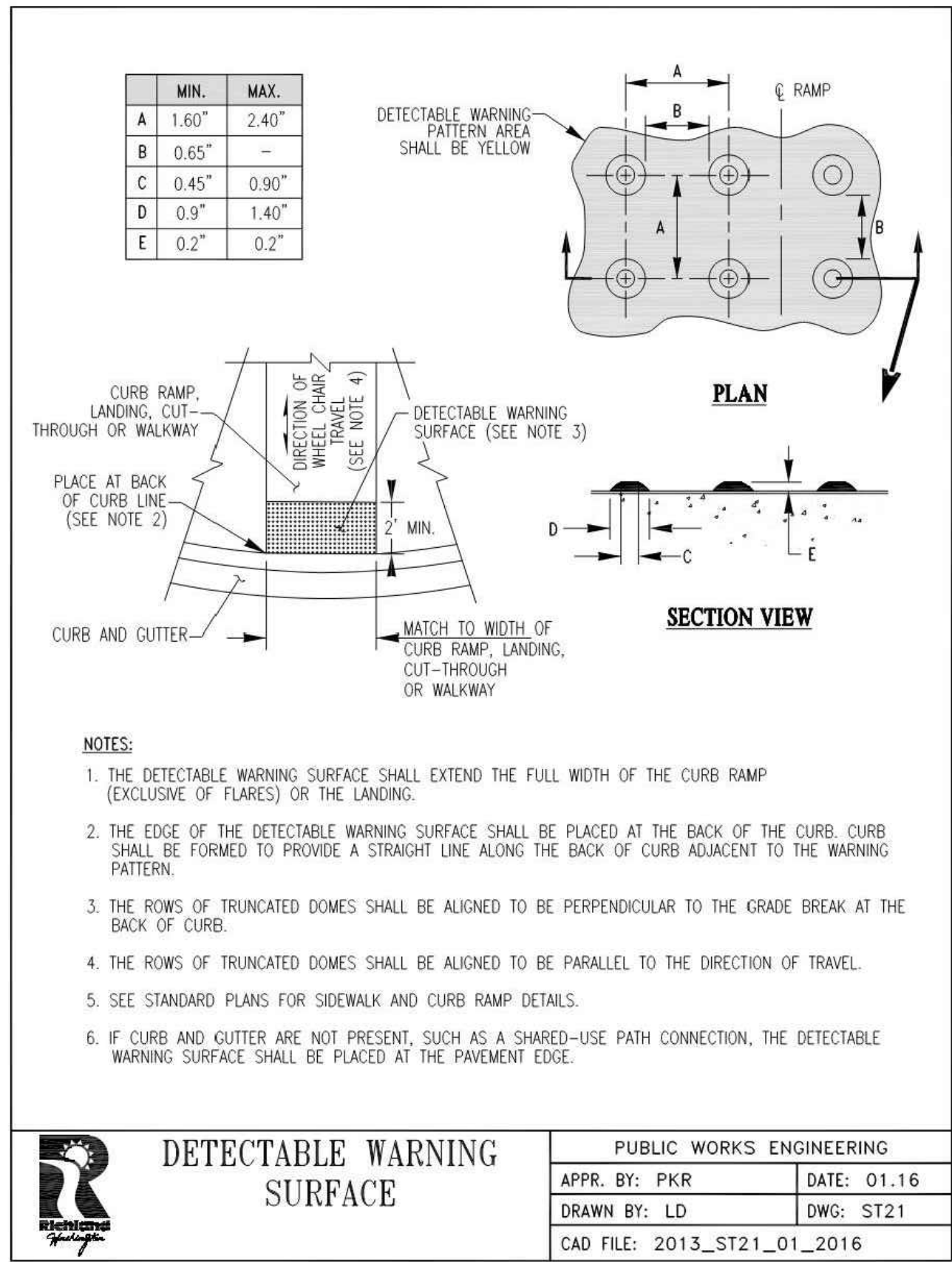
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AHLB
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CITY OF RICHLAND
UPTOWN PARKING LOT
1317 GEORGE WASHINGTON WAY RICHLAND, WA
SITE DETAILS

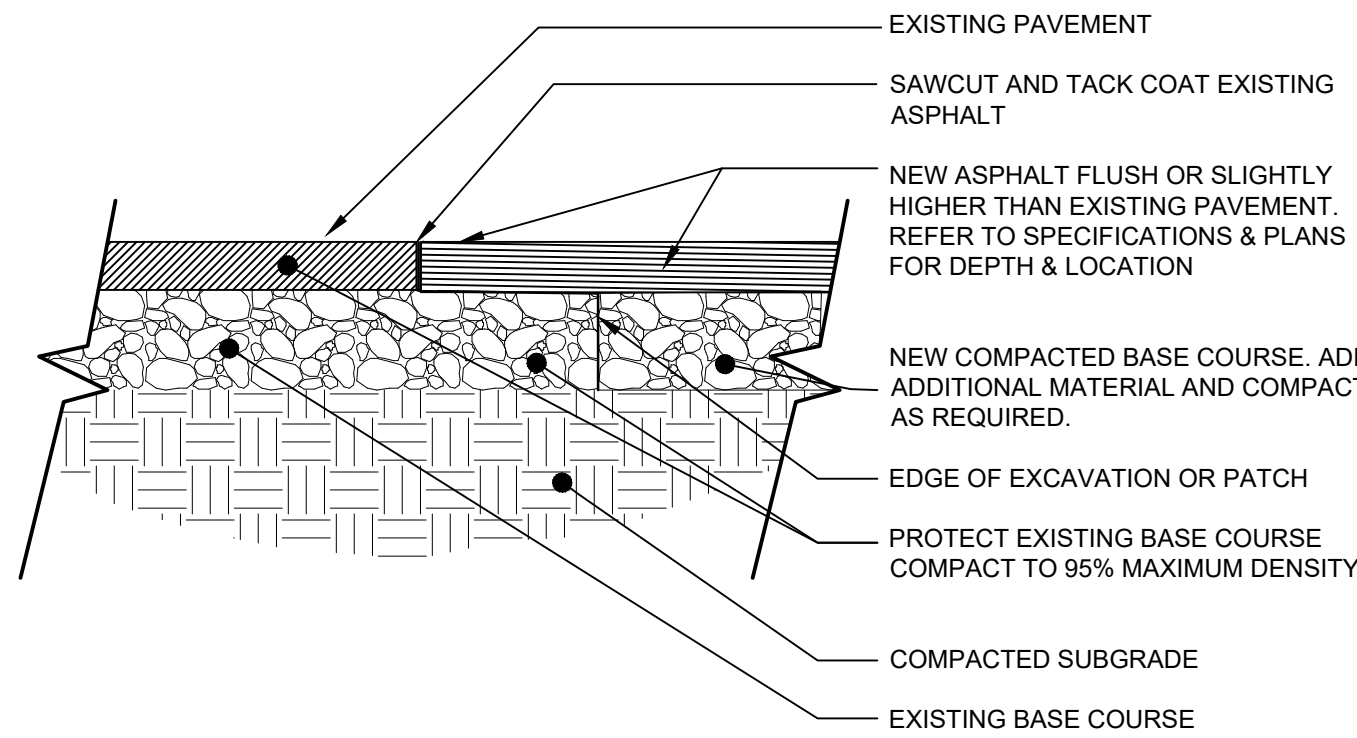
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DRAWN BY: MP/DG
ISSUE DATE: 02/22/2022
PHASE: BID / PERMIT SET
CHECKED BY: BO
REVISION:
SHEET NO.

L1.40



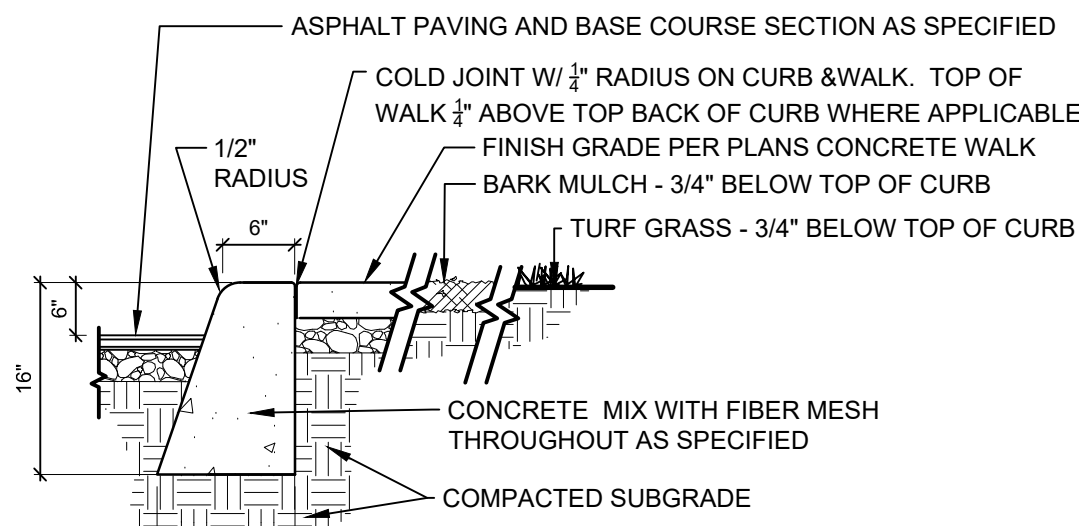
1 | CITY OF RICHLAND DETAIL

NTS



2 | EXISTING ASPHALT / NEW ASPHALT EDGE

1 1/2" = 1'-0"

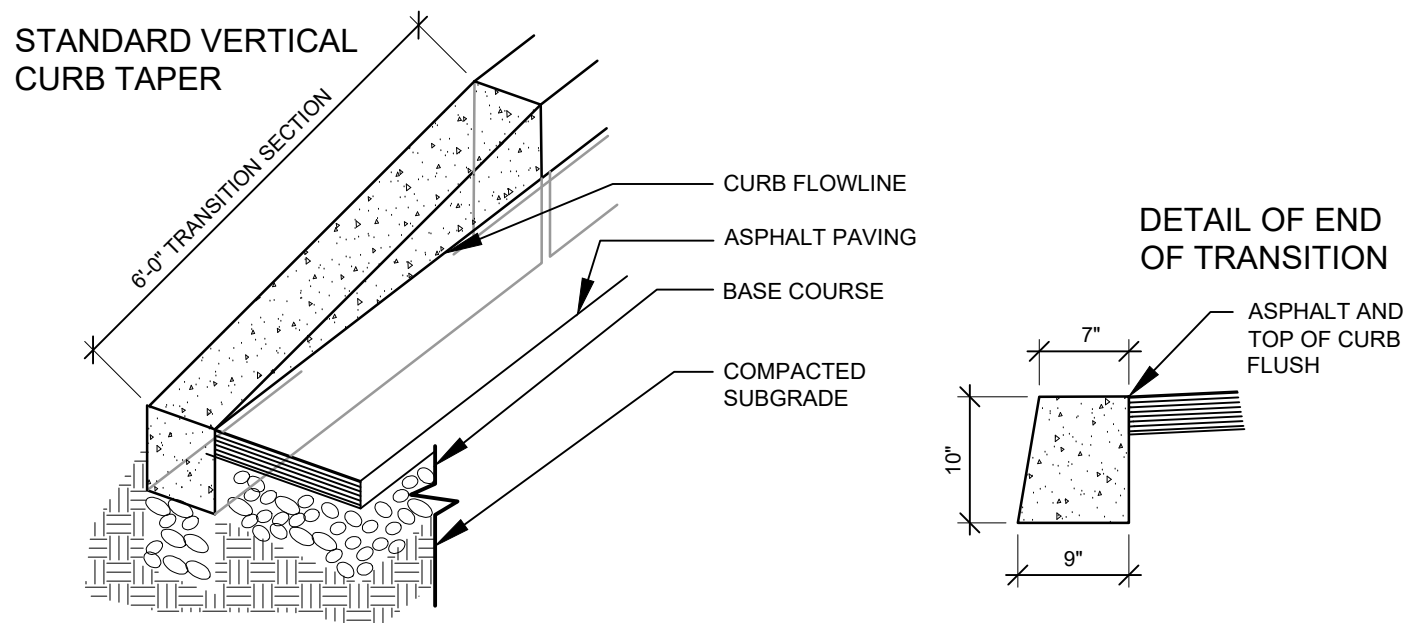


NOTES:

1. CONTRACTION JOINTS @ MAX. 10' O.C.
2. ISOLATION & CONSTRUCTION JOINTS @ MAX. 40' O.C.
3. PROVIDE EXPANSION JOINTS AT THE INTERSECTION OF STRAIGHT CURB & RADII.
4. ISOLATION AND CONSTRUCTION JOINTS SHALL BE PREFORMED JOINT FILLER OF 3/4" THICKNESS.
5. CONTRACTION JOINTS SHALL BE MINIMUM 1/2" WIDE, 1/2" DEEP, AND ROUNDED CORNERS.

3 | STANDARD VERTICAL CURB

3/4" = 1'-0"

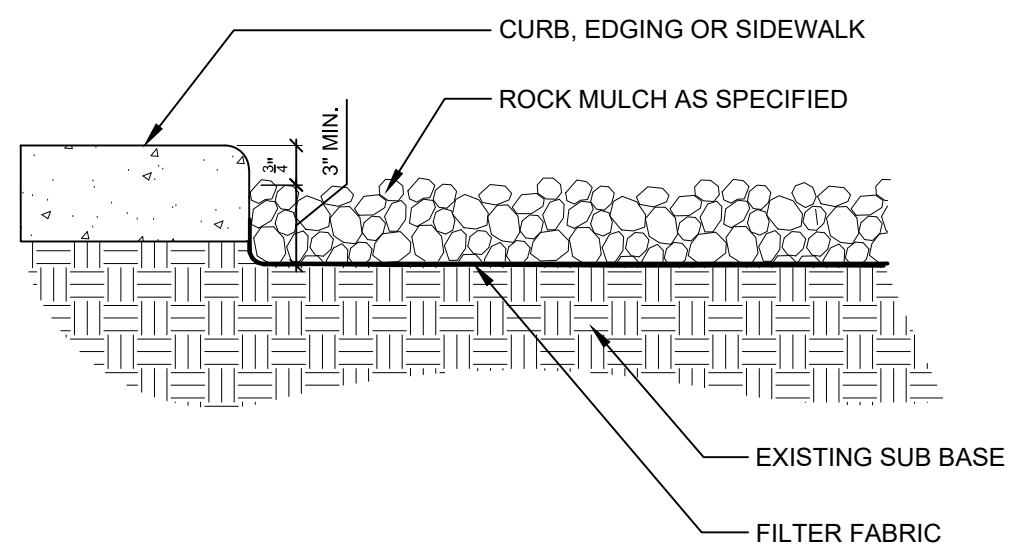


NOTES:

1. USE WITH VERTICAL 6" CURB OR CURB & GUTTER TO AVOID ABRUPT BEGINNING AND ENDING OF CURB.

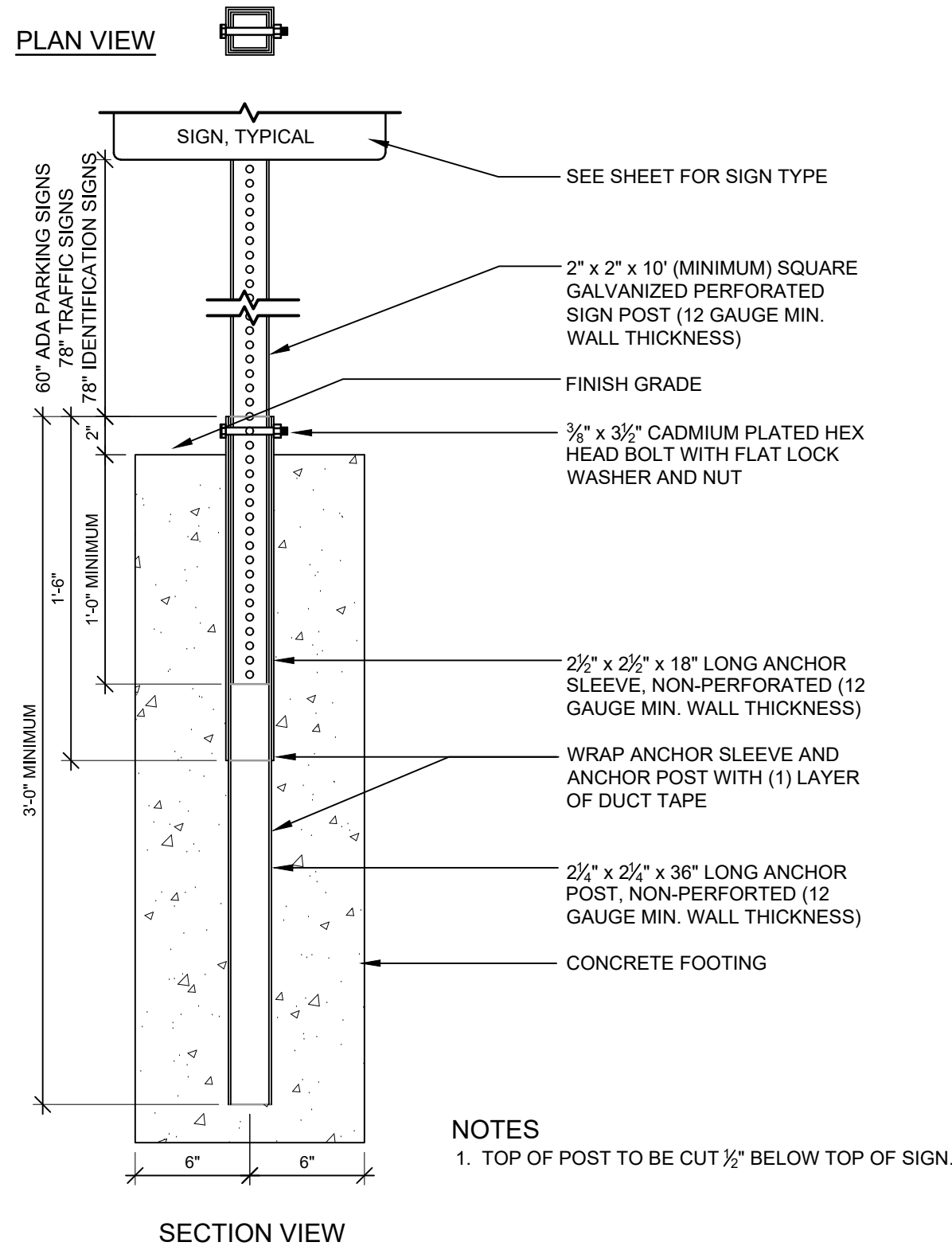
6 | CURB END

NTS



7 | ROCK MULCH

1 1/2" = 1'-0"



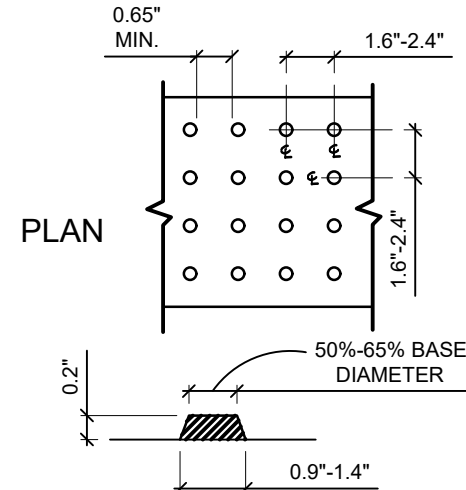
NOTES

1. TOP OF POST TO BE CUT 1/2" BELOW TOP OF SIGN.

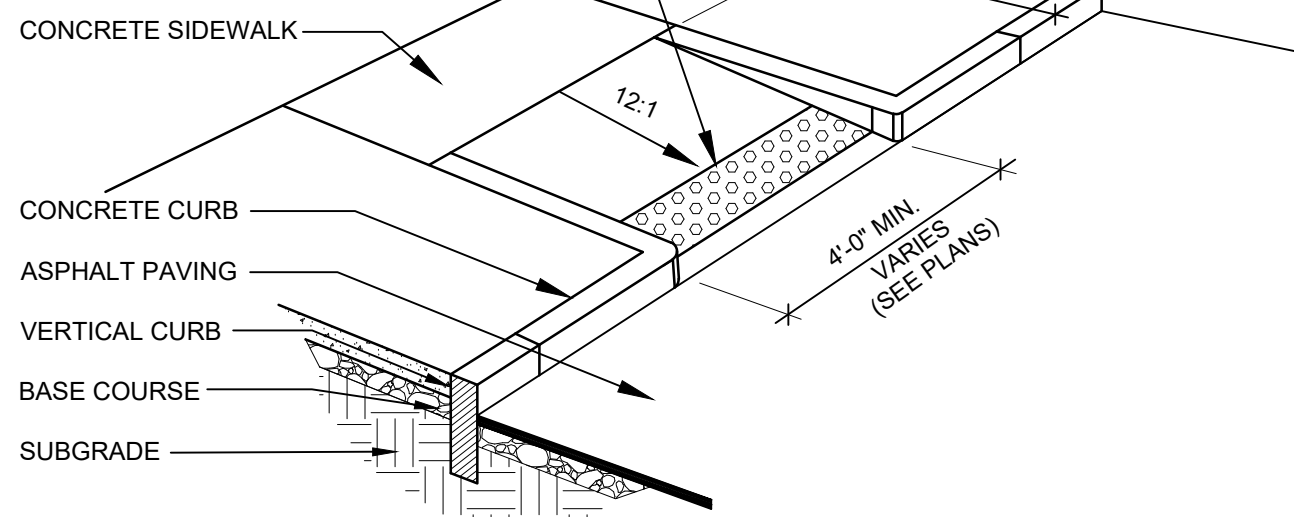
8 | SIGN POST

NTS

TRUNCATED DOME DETAIL



DETECTABLE WARNING TILE AS SPECIFIED, MIN. 24" IN DIRECTION OF TRAVEL AND EXTENDED FULL WIDTH OF CURB RAMP OR FLUSH SURFACE. LOCATE WITHIN 3'-4" OF BACK OF CURB.



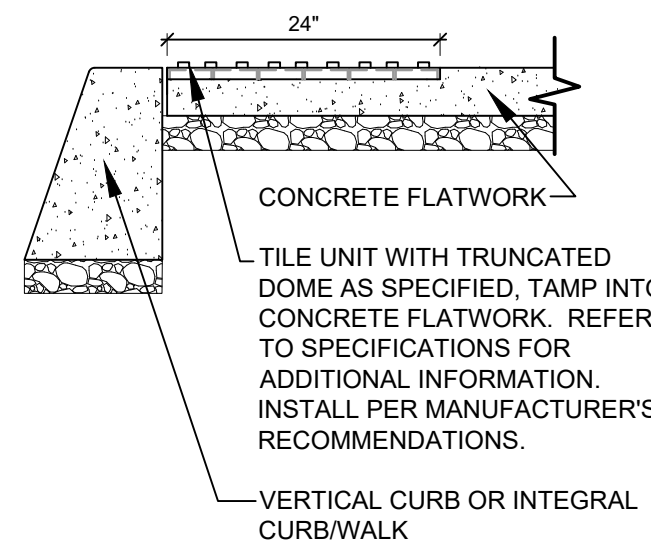
NOTE:

1. REFER TO LAYOUT PLANS FOR ACTUAL RAMP DIMENSIONS. VARIATIONS FROM THE DETAIL DIMENSIONS SHALL BE SUPERSEDED BY DIMENSIONS INDICATED ON THE PLANS.

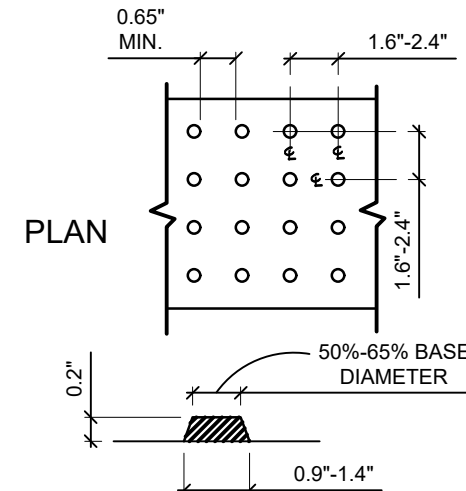
4 | CURB CUT RAMP- TYPE 2

NTS

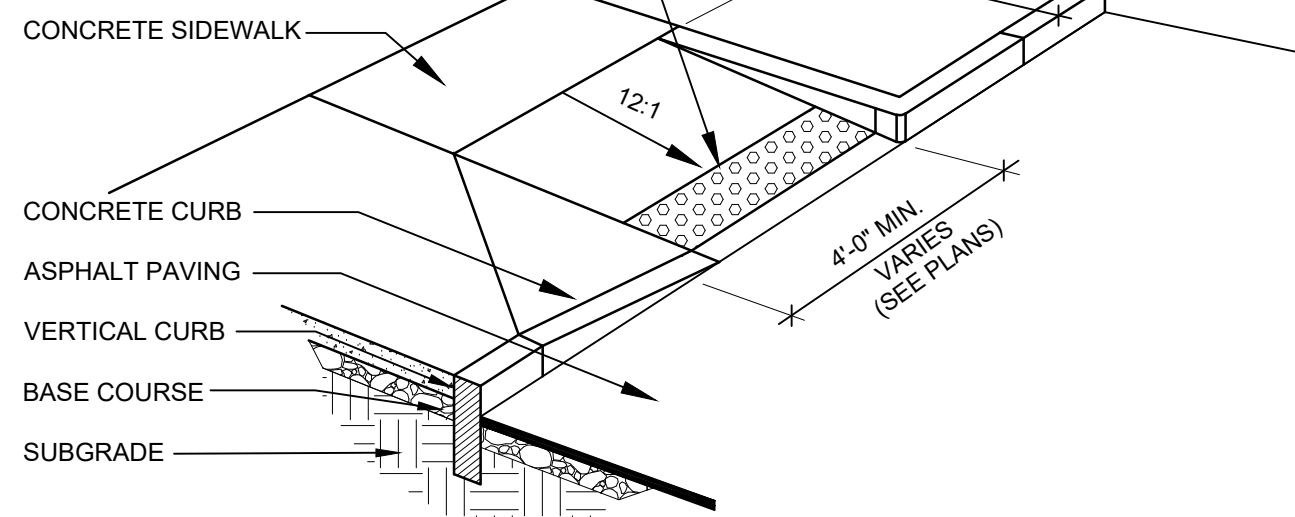
TILE DETAIL



TRUNCATED DOME DETAIL



DETECTABLE WARNING TILE AS SPECIFIED, MIN. 24" IN DIRECTION OF TRAVEL AND EXTENDED FULL WIDTH OF CURB RAMP OR FLUSH SURFACE. LOCATE WITHIN 3'-4" OF BACK OF CURB.

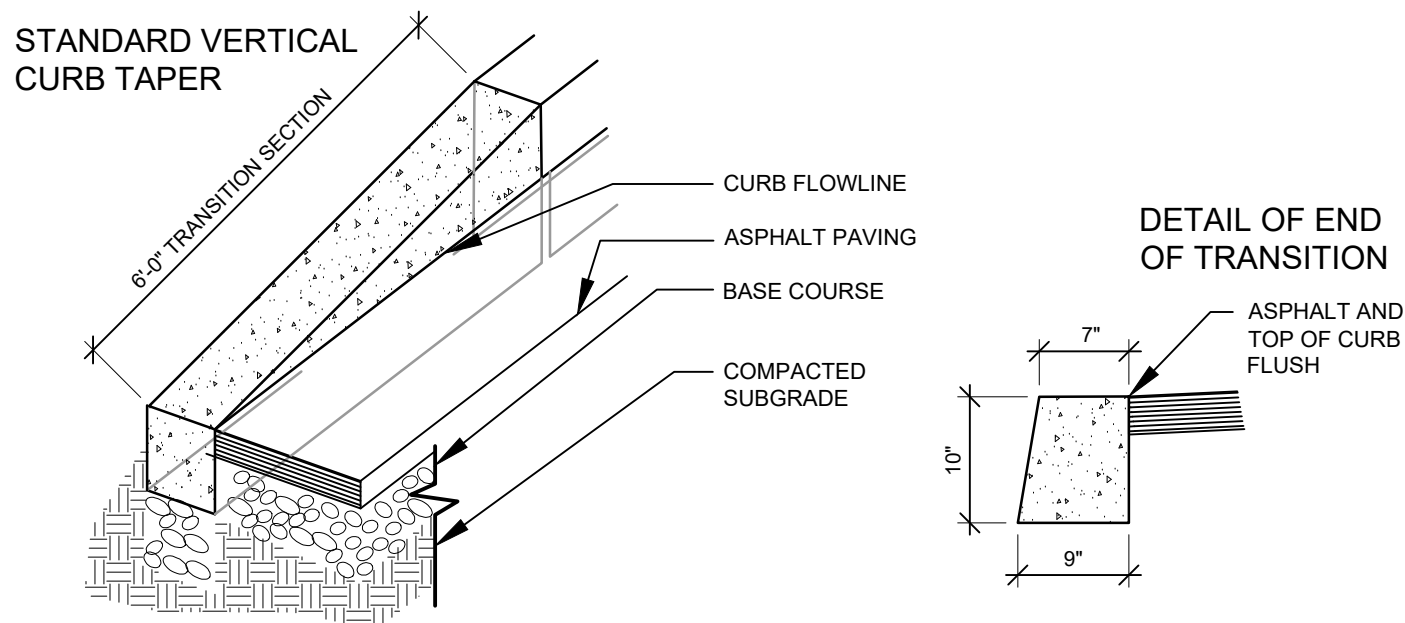


NOTE:

1. REFER TO LAYOUT PLANS FOR ACTUAL RAMP DIMENSIONS. VARIATIONS FROM THE DETAIL DIMENSIONS SHALL BE SUPERSEDED BY DIMENSIONS INDICATED ON THE PLANS.

5 | CURB CUT RAMP- TYPE 3

NTS

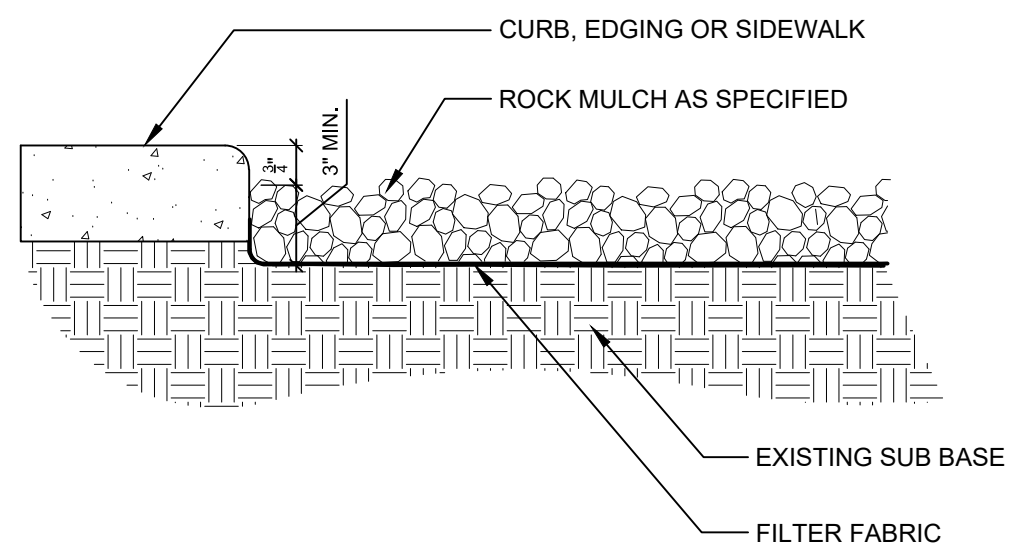


NOTES:

1. USE WITH VERTICAL 6" CURB OR CURB & GUTTER TO AVOID ABRUPT BEGINNING AND ENDING OF CURB.

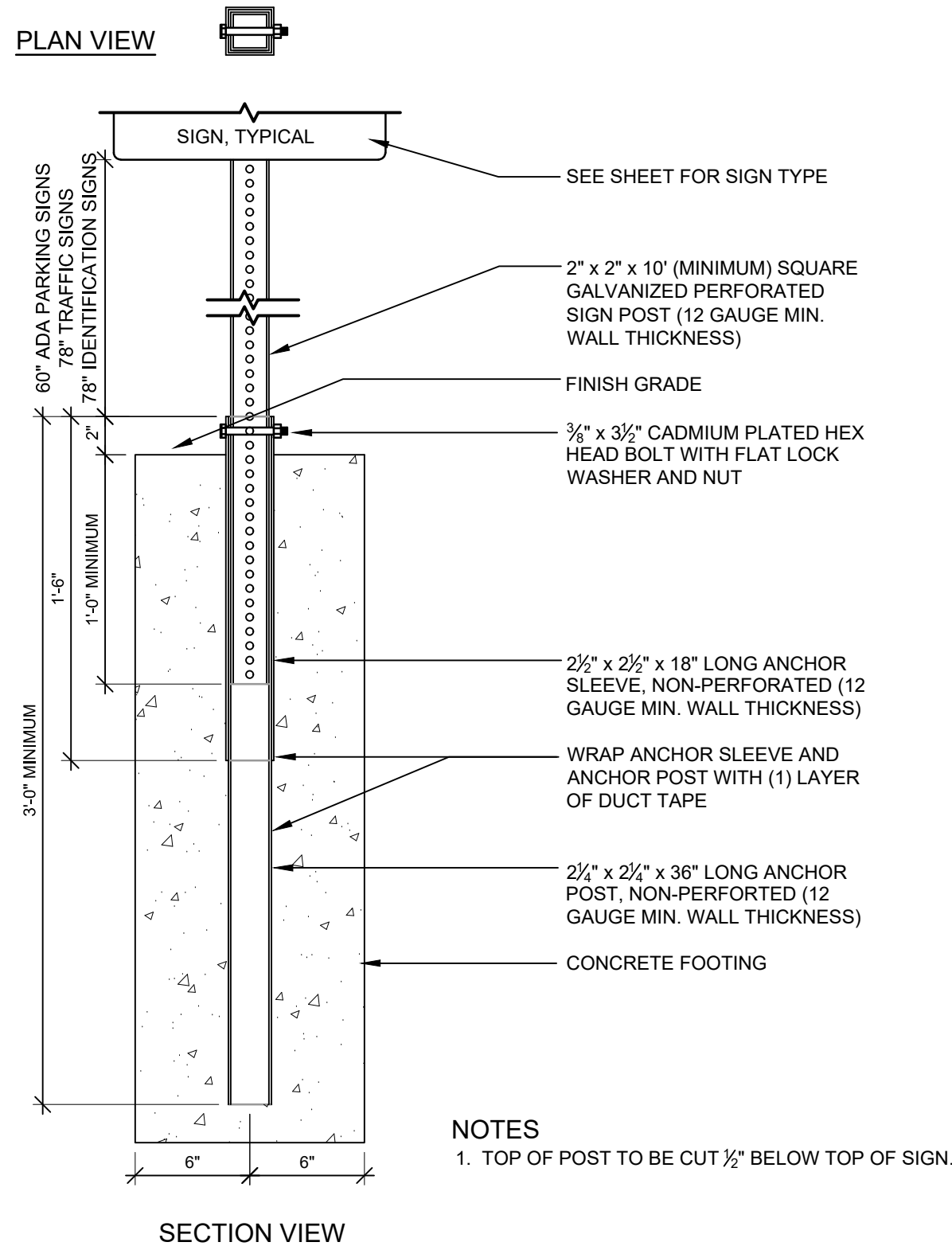
6 | CURB END

NTS



7 | ROCK MULCH

1 1/2" = 1'-0"



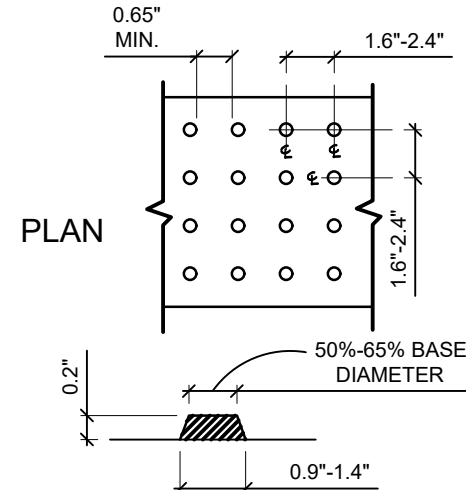
NOTES

1. TOP OF POST TO BE CUT 1/2" BELOW TOP OF SIGN.

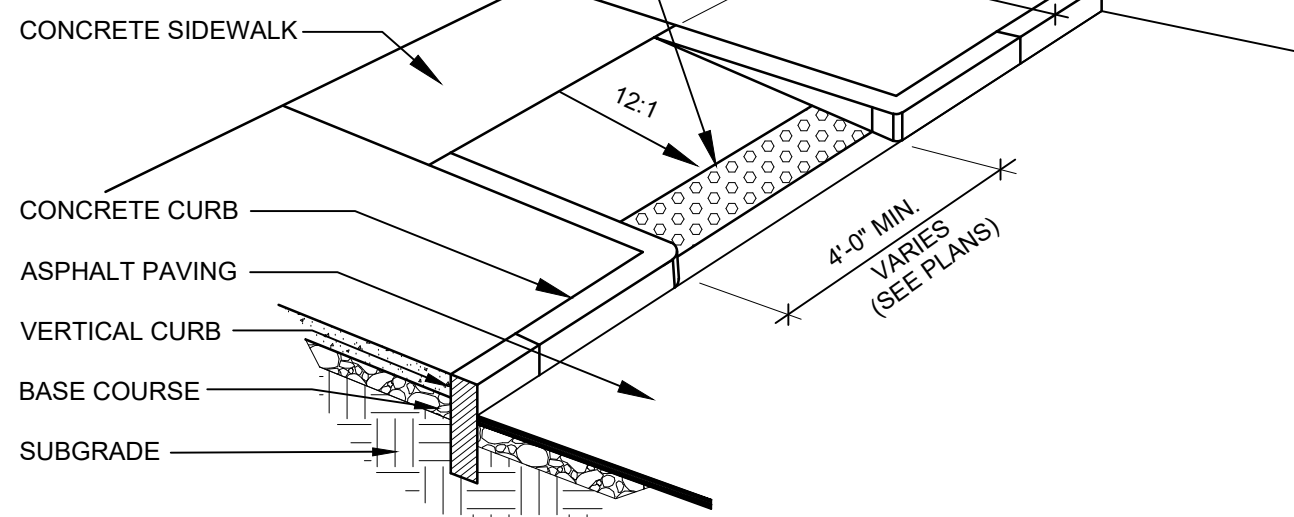
8 | SIGN POST

NTS

TRUNCATED DOME DETAIL



DETECTABLE WARNING TILE AS SPECIFIED, MIN. 24" IN DIRECTION OF TRAVEL AND EXTENDED FULL WIDTH OF CURB RAMP OR FLUSH SURFACE. LOCATE WITHIN 3'-4" OF BACK OF CURB.



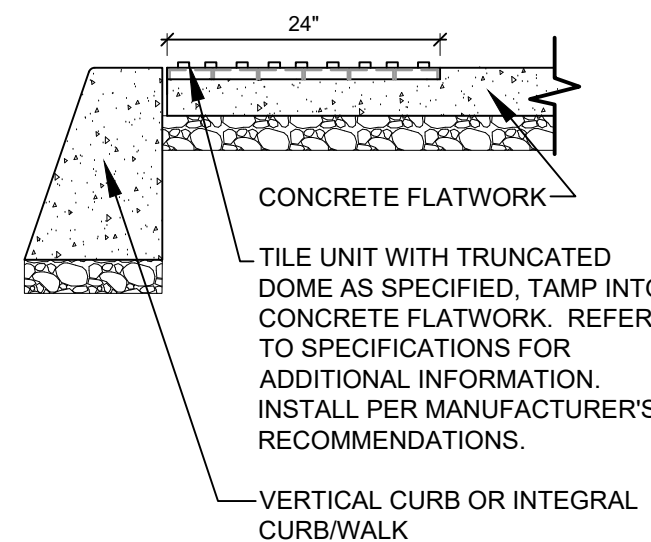
NOTE:

1. REFER TO LAYOUT PLANS FOR ACTUAL RAMP DIMENSIONS. VARIATIONS FROM THE DETAIL DIMENSIONS SHALL BE SUPERSEDED BY DIMENSIONS INDICATED ON THE PLANS.

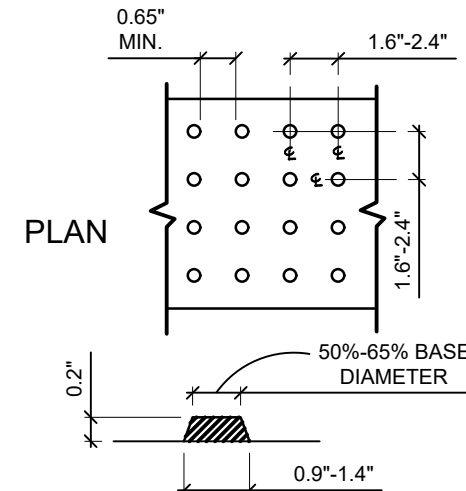
4 | CURB CUT RAMP- TYPE 2

NTS

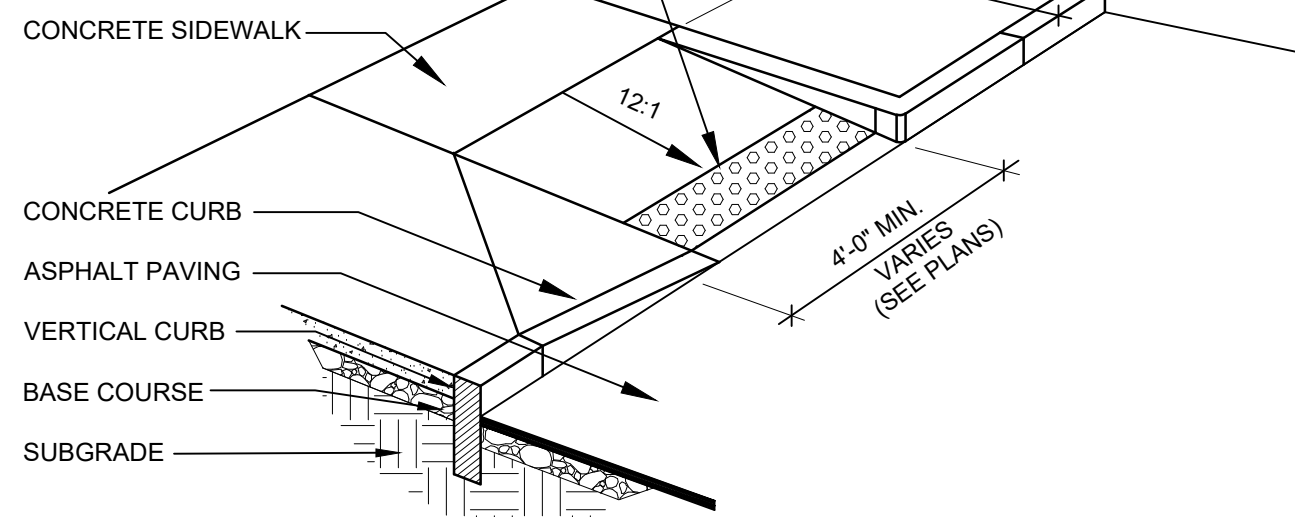
TILE DETAIL



TRUNCATED DOME DETAIL



DETECTABLE WARNING TILE AS SPECIFIED, MIN. 24" IN DIRECTION OF TRAVEL AND EXTENDED FULL WIDTH OF CURB RAMP OR FLUSH SURFACE. LOCATE WITHIN 3'-4" OF BACK OF CURB.

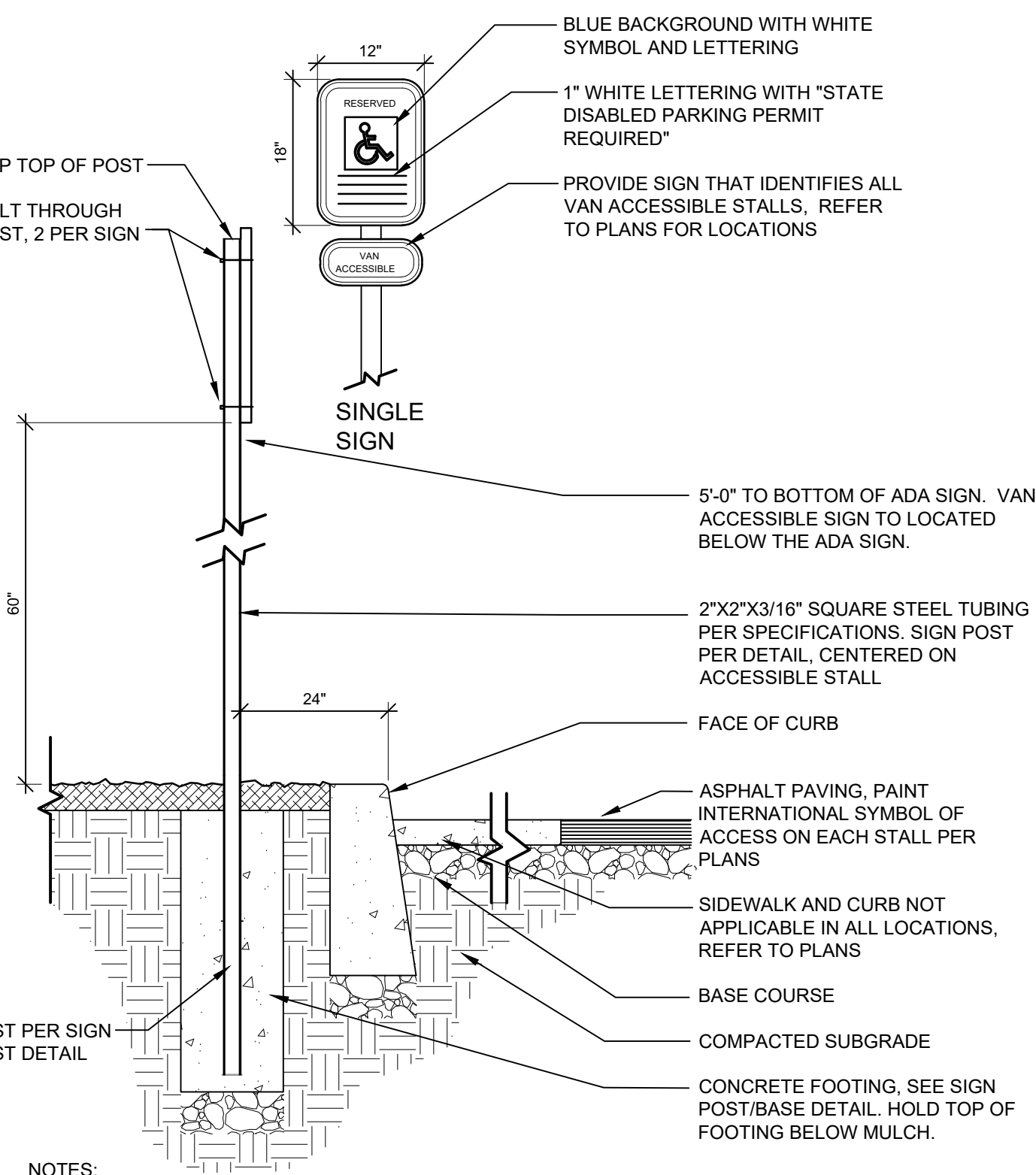


NOTE:

1. REFER TO LAYOUT PLANS FOR ACTUAL RAMP DIMENSIONS. VARIATIONS FROM THE DETAIL DIMENSIONS SHALL BE SUPERSEDED BY DIMENSIONS INDICATED ON THE PLANS.

5 | CURB CUT RAMP- TYPE 3

NTS



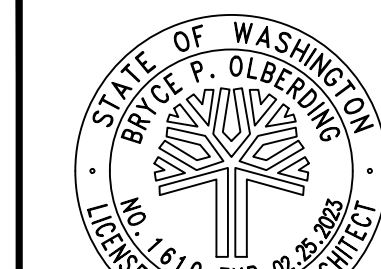
NOTES:

1. FOR A VAN ACCESSIBLE SIGN PROVIDE A 60" CLEARANCE FROM FINISH GRADE TO BOTTOM OF "VAN ACCESSIBLE" SIGN.

9 | ADA SIGNAGE

NTS

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CITY OF RICHLAND
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SITE DETAILS

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PHASE BID/PERMIT SET
CHECKED BY BO
REVISION
SHEET NO.

L1.41

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DIVISION 1 -- GENERAL REQUIREMENTS

011000 – SUMMARY

DIVISION 3 -- CONCRETE

033000 – CAST-IN-PLACE CONCRETE

DIVISION 10 -- SPECIALTIES

101426 – POST AND PANEL/PYLON SIGNAGE

DIVISION 31-33 -- SITE

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321313 – CONCRETE PAVING

321723 – PAVEMENT MARKINGS

329113 – SOIL PREPARATION

329200 – TURF AND GRASSES

END OF TABLE OF CONTENTS

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Type of the Contract.
 - 3. Owner-furnished products.
 - 4. Use of premises.
 - 5. Owner's occupancy requirements.
 - 6. Work restrictions.
 - 7. Specification formats and conventions.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: City of Richland Uptown Parking Lot Improvements
- B. Project Location: 1317 George Washington Way, Richland, WA 99354
- C. The Work consists of the following:
 - 1. The Work includes selective demolition, replacement of lab casework and accessories, and upgrades to finishes throughout.
 - a. The selective demolition includes complete removal of all the existing metal casework, fixtures and finishes in the areas and to the extent indicated. Also includes saw-cutting existing concrete slabs for new routing of plumbing and electrical components.
 - b. Exterior work is limited, and includes patching, repairing, and providing new stucco finish to match existing where required for wall infill and repair as indicated on the project drawings.
 - 2. Site Work includes parking lot reconstruction and installation of a new automatic vehicle access gate.

1.4 TYPE OF CONTRACT

- A. General contract for construction.

1.5 USE OF PREMISES

- A. General: Contractor shall have use of laboratory premises for construction operations during construction period. The balance of the facility will remain in operation. Contractor's use of premises is limited to the affected areas, and Contractor shall cooperate and coordinate with the Owner's Representative for all construction activities, security, staging and work hours.
 - 1. Driveways, Walkways and Entrances: Keep driveway loading areas, and entrances serving premises clear and available to Owner, Owner's employees, occupants, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Staging areas to be coordinated with Owner.

- a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- B. Condition of Existing Building: Maintain occupied portions of existing buildings, and the buildings that are to remain that are affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations. Spaces must also be secure from entry by unauthorized persons.

1.6 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy a portion of the premises throughout construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits where they are not affected by the construction.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.7 WORK SEQUENCE

- A. Construct Work in a single phase during the construction period.

1.8 WORK RESTRICTIONS

- A. On-site Work Hours: Work shall be generally performed during normal working hours of between 7 a.m. to 5 p.m., Monday through Friday, except otherwise arranged by agreement between the Contractor and the Owner.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities in use by others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify authorities having jurisdiction of not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without written permission.
- C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Architect and Owner not less than two days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- D. Nonsmoking Building: Smoking is not permitted on premises.
- E. Controlled Substances: Use of controlled substances on the Project site is not permitted.
- F. This project is located within Richland city limits; therefore, burning is prohibited at all times.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Architectural Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Other miscellaneous concrete work as shown on the Drawings.
- B. Related Sections include the following:
 - 1. Division 31 Section "Earth Moving" for drainage fill under slabs-on-grade.
 - 2. Division 32 Section "Concrete Paving" for exterior concrete flatwork and curbs.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, slag cement, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement. Retain paragraph below if Contractor is responsible for field quality-control testing and inspections other than special inspections.
- D. Field quality-control test and inspection reports.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.

- C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 318, "Standards for Tests and Materials".
 - 2. ACI 318, "Construction Requirements".
- D. Testing Agency Qualifications: An independent agency, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1, according to ACI CP-01 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
 - 3. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products.

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, unless shown otherwise on the drawings.
- D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Sealer: Penetrating, clear, polyurethane wood form sealer formulated to reduce absorption of bleed water and prevent migration of set-retarding chemicals from wood.

- F. Form Ties: Factory-fabricated, removable, or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 3/4 inch in diameter in concrete surface.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (grade 40 acceptable for #3 bars, deformed).

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut bars true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F.
- B. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33, Class 3M coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size for general concrete applications: 3/4-inch nominal, 1-1/2 inch for footing construction
- D. Normal-Weight Fine Aggregate: ASTM C 33 or ASTM C 144, manufactured or natural sand, from same source for entire Project, free of materials with deleterious reactivity to alkali in cement.
- E. Water: ASTM C1602 and potable.

2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Retarding Admixture: ASTM C 494/C 494M, Type B.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Stair Nosings for Exterior Concrete Stairs: Abrasive cast iron stair nosing. Black, 3 inches wide, nose 1/4 inch underside, concealed anchor. Basis-of-Design Project: Wooster Model 101.

2.8 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 1. Fly Ash: 25 percent.
 2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Ground Granulated Blast-Furnace Slag: 50 percent.
 4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 5. Silica Fume: 10 percent.
 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
 7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use high-range water-reducing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete and concrete with a water-cementitious materials ratio below 0.50.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. Chamfer exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.4 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints where indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Space vertical joints in walls as indicated.
 - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 - 2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Owners Testing Agency.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- D. Deposit and consolidate concrete for slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 305.1.
- G. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.6 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

3.7 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.8 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.9 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

- B. Inspections:
1. Steel reinforcement placement.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample only when ambient outdoor temperature is below 40 degrees Fahrenheit only when ambient outdoor temperature is below 40 degrees Fahrenheit.
 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and two specimens at 28 days if using 6x12 inch units and three specimens if using 4x8 inch units.
 - a. Test one set of two field-cured specimens at 7 days and three specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 8. Strength of each concrete mixture will be satisfactory if every average of any three-consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
 12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 13. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 033000

02/22/22

City of Richland Uptown Parking Lot Improvements (21025)

CAST-IN-PLACE CONCRETE

033000 - 9

SECTION 101426 - POST AND PANEL/PYLON SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Nonilluminated post and panel signs.
- B. Related Sections include the following:
 - 1. Division 03 Section "Cast-in-Place Concrete" for concrete foundations and concrete fill.
 - 2. Division 10 Section "Signage" for wall-mounted signs and dimensional characters.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide post and panel signs that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for post and panel/pylon signage.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Provide message list, typestyles, graphic elements, and layout for each sign at least half size and full-size details of graphics.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Aluminum.
- D. Sign Schedule: Use same designations indicated on Drawings.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

- B. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- C. Regulatory Requirements: Comply with applicable provisions in ICC A117.1.

1.7 COORDINATION

- A. Coordinate installation of anchorages for post and panel/pylon signage. Furnish setting drawings, templates, and directions for installing anchorages and other items that are to be embedded in concrete.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify locations of anchorage devices embedded in permanent construction by other installers by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of post and panel signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of metal finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs

2.2 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B 209M, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- B. Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.

2.3 PANEL SIGNS

- A. Sign Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.
 - 1. Coordinate dimensions and attachment methods to produce message panels with closely fitting joints. Align edges and surfaces with one another in the relationship indicated.
 - 2. Increase metal thickness or reinforce with concealed stiffeners or backing materials as needed to produce surfaces without distortion, buckles, warp, or other surface deformations.

3. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds to produce smooth, flush, exposed surfaces with welds invisible after final finishing.

B. Message Panel Materials:

1. Aluminum Sheet: 0.125 inch thick.
 - a. Panel Finish: Mill finish.
 - b. Color: Mill finish.
2. Edge Condition: Square cut.
3. Corner Condition: Rounded to radius.

2.4 POSTS

- A. General: Fabricate posts to lengths required for mounting method indicated on the Drawings.
- B. Steel Posts: Fabricate from 3/16-inch-thick, 2-inch square steel tubing. Include post caps required for complete installation.
 1. Post Size: As indicated on the Drawings.
 2. Post Finish: Galvanized.
 3. Color: Natural galvanized.

2.5 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
 1. For exterior exposure, furnish nonferrous-metal devices unless otherwise indicated.
 2. Exposed Metal-Fastener Components, General:
 - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.
 - b. Fastener Heads: For nonstructural connections, use screws and bolts with tamper-resistant, Allen-head slots unless otherwise indicated.
- B. Anchoring Materials:
 1. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - a. Water-Resistant Product: At exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

- A. General: Provide manufacturer's standard post and panel signs of configurations indicated.
 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
 2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items, including anchor inserts, are sized, and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Excavation: Excavate for sign foundation to elevations and dimensions indicated. Reconstruct subgrade that is not firm, undisturbed, or compacted soil, or that is damaged by freezing temperatures, frost, rain, accumulated water, or construction activities by excavating a further 12 inches, backfilling with satisfactory soil, and compacting to original subgrade elevation.
- B. Protect portion of posts above ground from concrete splatter.
- C. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Install signs so they do not protrude or obstruct according to accessibility standard.
 - 3. Before installation, verify that sign components are clean and free of materials or debris that would impair installation.
 - 4. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.

3.3 CLEANING AND PROTECTION

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.

- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION 101426

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Protecting existing vegetation to remain.
 - 2. Removing existing vegetation.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Removing above and below grade site improvements.
 - 6. Disconnecting, capping, or sealing, and abandoning site utilities in place.
 - 7. Temporary erosion and sedimentation control.
- B. Related Requirements:
 - 1. Section 5.12 "Layout of Work" for field engineering and surveying.
 - 2. Division 31 Section "Earth Moving" for base course and compaction.

1.3 DEFINITIONS

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 3 percent organic matter and few soil organisms.
- B. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Topsoil removal depths vary for differing site areas, per the requirements herein.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.
- C. Burning: NO BURNING ALLOWED.

1.7 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service, "Call Before You Dig" for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- E. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain have been flagged.
- C. Refer to Section 5.11 "Protection of Existing Structures, Equipment, Vegetation, Utilities, and Improvements."

- D. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties, walkways, and public rights-of-way, according to requirements of authorities having jurisdiction and the Erosion and Sediment Control Plans.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction.
- D. Dust control will be critical throughout the life of the project, due residential neighborhoods adjacent to the project site. Maintain moist soil conditions during onsite operations. Exposed soil shall be sealed during non-operational times.
- E. At completion of project, remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Protect trees, turf, and plants remaining on-site throughout the life of the project.
- B. Repair or replace trees, shrubs, turf, and other vegetation indicated to remain that are damaged by construction operations.

3.4 EXISTING UTILITIES

- A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.
 - 1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.
 - 1. Arrange with utility companies to shut off indicated utilities.
- C. Locate, identify, and disconnect utilities indicated to be abandoned in place.
- D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless approved by the Owner and then only after arranging to provide temporary utility services.
- E. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain.
 - 2. Grind down stumps and remove roots larger than 2 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
 - 3. Use only hand methods for grubbing within protection zones.

4. Chip removed tree branches and dispose of off-site.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding a loose depth of 8-inches and compact each layer to structural fill requirements outlined in Division 31 Section "Earth Moving".

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil as required to a depth as follows:
 1. Refer to project specific geo-technical reports for topsoil stripping depths.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover with visqueen to prevent windblown dust and erosion by water per Stormwater Management Manual for Eastern Washington.
 1. Coordinate stockpile locations with the Owner.
 2. Limit height of topsoil stockpiles to 6 feet, maximum height may vary dependent upon space available.
 3. Do not stockpile topsoil within protection zones.
 4. Ensure quantities left onsite will be adequate for reuse.

3.7 SITE IMPROVEMENTS

- A. Remove existing above and below grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, and aggregate base as indicated.
 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Excavating and filling for rough grading the site.
 - 2. Preparing subgrades for walks, curbing, and pavements.
 - 3. Preparing subgrades for turf, grasses, and plants.
 - 4. Base course for concrete flatwork.
 - 5. Base course for asphalt paving.
 - 6. Excavating and backfilling trenches for buried utility structures.
- B. Related Requirements:
 - 1. Section 4.02 "Project Record" for recording pre-excavation and earth-moving progress.
 - 2. Division 03 Section "Cast-in-Place Concrete" for granular course.
 - 3. Division 31 Section "Site Clearing" for site stripping, and removal of above- and below-grade improvements and utilities.
 - 4. Division 32 Section "Soil Preparation" for planting soil depths.

1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
 - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subgrade and hot-mix asphalt paving, or concrete flatwork.
- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill. Satisfactory soil requirements for site areas are provided in Section 2.1.
- E. Drainage Course: Clean or washed aggregate associated with drainage structures.
- F. Drainage Structure: Catch basins, manholes, french drains, trench drains, pipe headwalls, storm piping, infiltration trenches, or any other man-made structure intended to collect or convey storm water.
- G. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

H. Fill: Soil materials, structural or non-structural, used to raise existing grades.

I. Non-structural Fill: Soil material placed outside 5 feet of structures.

J. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

K. Structural Fill: Soil material placed beneath or within 5 feet of site improvements.

L. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below base course, drainage fill, drainage course, or topsoil materials.

M. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
 - a. Personnel and equipment needed to make progress and avoid delays.
 - b. Coordination of Work with utility locator service.
 - c. Coordination of Work and equipment movement with utility installation by others.
 - d. Extent of trenching by hand.
 - e. Field quality control.
 - f. Coordination with Owner's Testing Agency.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

1. Geotextiles.
2. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long; of each color.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

1. Gradation analysis according to ASTM D 6913.
2. Laboratory compaction curve according to ASTM D 1557.

1.7 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: The Owner will employ a testing agency and geotechnical engineer for construction that is qualified to perform the testing required, classify the

proposed onsite and borrow soil, and verify that soil conditions comply with the design and specified requirements during construction. The testing agency shall include a licensed professional engineer registered in the state to oversee geotechnical-related site observations and related testing supervision operations.

- B. Comply with Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction – 2020 Edition for workmanship and materials where indicated.

1.8 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service "Call Before You Dig" for area where Project is located before beginning earth-moving operations. Provide this service for both off-site and onsite locates.
- C. Do not commence earth-moving operations until temporary site fencing and erosion- and dust-control measures specified in Section 5.08 "Operations, Materials Handling, and Storage Areas" and Division 31 Section "Site Clearing" are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 6 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter,
- C. Unsatisfactory Soils: Unsatisfactory Soil: Soil classified as ML, CL, CH, MH, OH, OL, or PT may not be used onsite. Any soil containing more than 3% organics or deleterious substances is unsatisfactory.
- D. Base Course: Artificially graded mixture of crushed stone, and natural or crushed sand; generally meeting *WSDOT – 9-03.9(3)* specification for crushed surfacing top course (3/4" minus crushed aggregate). Base course beneath concrete flatwork shall contain no more than 5 percent passing the No. 200 sieve.
- E. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; generally meeting *WSDOT – 9-03.12(3) – Gravel Backfill for Pipe Zone Beddings of WSDOT Standards*.
- F. Pipe Zone Backfill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; generally meeting *WSDOT – 9-03.10 – Aggregate for Gravel Base conforming to the 2018 WSDOT Standards*.

- G. Drainage Course: Narrowly graded mixture of crushed stone, uncrushed gravel; generally meeting *WSDOT – 9-03.12(4) – Gravel Backfill for Drains of WSDOT Standards*.
- H. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand. generally meeting *WSDOT – 9-03.13 – Backfill for Sand Drains of WSDOT Standards*.
- I. See Division 31 Section "Site Clearing" for boulders.

2.2 GEOTEXTILES

- A. Separation and Stabilization Geotextile: Non-woven geotextile fabric, manufactured for separation and stabilization applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with WSDOT Standards Section 9-33.2(1), Table 3.

Table 3
Geotextile for Separation or Soil Stabilization

Geotextile Property	ASTM Test Method ²	Geotextile Property Requirements ¹			
		Separation		Soil Stabilization	
		Woven	Nonwoven	Woven	Nonwoven
AOS	D4751	No. 30 max.		No. 40 max.	
Water Permittivity	D4491	0.02 sec ⁻¹ min.		0.10 sec ⁻¹ min.	
Grab Tensile Strength, in machine and x-machine direction	D4632	250 lb min.	160 lb min.	315 lb min.	200 lb min.
Grab Failure Strain, in machine and x-machine direction	D4632	< 50%	≥ 50%	< 50%	≥ 50%
Seam Breaking Strength	D4632 ³	220 lb min.	140 lb min.	270 lb min.	180 lb min.
Puncture Resistance	D6241	495 lb min.	310 lb min.	620 lb min.	430 lb min.
Tear Strength, in machine and x-machine direction	D4533	80 lb min.	50 lb min.	112 lb min.	79 lb min.
Ultraviolet (UV) Radiation Stability	D4355	50% strength retained min., after 500 hours in xenon arc device			

2.3 ACCESSORIES

- A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."
- D. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.
- E. Protect prepared subgrades from degradation, softening or pumping by construction traffic. Repair subgrades damaged by construction activities at no cost to the Owner.
- F. Remove undocumented fill below any walk, structure, or paved area to native, undisturbed soil. Prepare subgrade after undocumented fill removal to the requirements of this specification. See project-specific *Geotechnical Evaluation* dated April 21, 2020, prepared by ALLWEST for more information.

3.2 DEWATERING

- A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
- B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

- D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.3 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
- B. Site soil is expected to be excavatable using conventional excavation techniques and equipment.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.
- B. Remove deleterious material and debris exposed during subgrade preparations.
- C. Prepare subgrades as described in the *Geotechnical Evaluation* dated April 21, 2020, prepared by ALLWEST for each project.

3.5 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
 - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
 - 2. Remove all saturated, loose, or disturbed soil from the bottom of the utility trenches prior to placing pipe bedding.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
 - 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.
 - 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.6 EXCAVATION FOR MULCHES

- A. Excavate surfaces under mulches to allow for indicated depths and finished elevations. Finish grade of mulch shall be 3/4 inch below adjacent walk or curbing.

3.7 EXCAVATION FOR TURF AND LANDSCAPE PLANTING AREAS

- A. Excavate surfaces under turf and landscape plantings to allow for indicated depths and finished elevations. Coordinate with Division 31 Section "Soil Preparation" for placing and mixing planting soil over exposed subgrade.

3.8 SUBGRADE INSPECTION

- A. Notify [BC1]Geotechnical Testing Agency when excavations have reached required subgrade following site preparations.
- B. If Geotechnical Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Moisture-condition and compact the subgrade below the slabs and pavements to required compaction levels presented herein. If the subgrade becomes soft or unstable during subgrade compaction, remove an additional native soil, moisture condition, and reinstall as structural fill. Do so only after subgrade review and identification of affected areas and as directed by the Geotechnical Testing Agency.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. If earthwork occurs during wet periods, accomplish work at or near final subgrade using equipment that imparts low bearing pressures, track-mounted, drum and low tire pressure equipment. Refer to Wet Weather/Wet Soil Construction section of the project-specific *Geotechnical Evaluation* for subgrade improvements, if required.
- F. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, without additional compensation.

3.9 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust per Erosion and Sedimentation control Plan.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade where applicable.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
 - 6. Notifying Geotechnical Testing Agency to observe the subgrade in accordance with Section 3.7 – Subgrade Inspection of this specification.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

- C. Initial Backfill:
 - 1. Soil Backfill: Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
 - a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
- D. Final Backfill:
 - 1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
- E. Warning Tape: Install detectable warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.12 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 5 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use non-structural fill material.
 - 2. Under walks and pavements, use structural fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.13 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.14 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Prepare subgrades which will receive fill beneath improvements must be scarified, moisture-conditioned, compacted per the following requirements and approved by the Owner's testing agency, prior to fill placement.
- B. Scarify exposed soil surface a minimum of 8 inches, moisture conditions and compact to 92 percent maximum dry unit weight according to ASTM D 1557.
- C. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- D. Place backfill and fill soil materials evenly on all sides of improvements to required elevations and uniformly along the full length of each structure.
- E. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:
 - 1. Under pavements, compact top 12 inches of existing subgrade and each layer of backfill or fill soil material to a minimum 95 percent.

2. Under walkways, compact top 6 inches below subgrade and compact each layer of backfill or fill soil material to a minimum 95 percent.
 3. Under turf, landscape, or unpaved areas, scarify and lightly recompact top 12 inches below subgrade to a minimum of 87 percent. Do not exceed 90 percent. Owner shall confirm with testing.
 4. For utility trenches, compact each layer backfill placed 2 feet or more below the surface soil material at 95 percent. Backfill placed in the upper 2 feet beneath proposed improvements should be compacted to 95 percent maximum density of the ASTM D1557.
 5. For site light poles, compact each layer backfill placed 2 feet or more below the surface soil material at 95 percent. Backfill placed in the upper 2 feet beneath proposed improvements should be compacted to 95 percent maximum density of the ASTM D1557. Testing agency to confirm.
- F. Method Compaction - Structural fill comprising material with more than 30 percent by weight coarser than $\frac{3}{4}$ inch must be compacted using a "method specification" which requires at least 5 complete passes of a 10-ton or larger, vibratory roller. If alternate compaction equipment such as vibratory hoe-packs or large pneumatic equipment is selected, the Geotechnical Testing Agency must be contacted to review this equipment and evaluate soil density and roller patterns during construction. Regardless, this method of compaction effort must create a dense and interlocking surface that does not exhibit pumping, rutting or deflection beneath construction equipment and is free of loose soil debris and standing water. Method compaction must be observed by the Geotechnical Testing Agency on a near full-time basis at the onset of placement to establish final roller pass requirements and to verify the material is compacted to as high a density as practical with the selected compaction equipment.

3.15 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from improvements and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
1. Turf or Unpaved Areas: Plus or minus 1 inch.
 2. Walks: Plus or minus $\frac{1}{2}$ inch.
 3. Pavements: Plus or minus $\frac{1}{2}$ inch.
- C. Site Finish Grading: Grade areas adjacent to improvements to a smooth, uniform surface plane with loose, uniformly fine texture. Grade tolerance to within plus or minus $\frac{1}{2}$ inch.
- D. Grading outside Building Lines: Finish subgrade to a tolerance of $\frac{1}{2}$ inch when tested with a 10-foot straightedge.

3.16 BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared and approved subgrade, place base course under concrete slabs-on-grade, pavements and walks as follows:
1. Place base course material on approved and accepted subgrade.
 2. Shape base course to required elevations and cross-slope grades.
 3. Place base course 10 inches or less in compacted thickness in a single layer.

4. Place base course that exceeds 10 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 10 inches thick or less than 5 inches thick.
5. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.17 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- C. Owner's testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:
 1. Paved/Flatwork Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 1000 sq. ft. or less of paved area, but in no case fewer than three tests.
 2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 50 feet or less of trench length, but no fewer than two tests.
- D. When testing agency reports (verbal or written) that subgrades, fills, or backfills have not achieved degree of compaction, scarify, and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction and subgrade criteria are met. No additional compensation will be paid for nonconforming areas and subsequent rework.

3.18 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 1. Scarify or remove and replace soil material to depth as directed by Geotechnical Testing Agency; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.19 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Hot-mix asphalt paving.
 - 2. Existing asphalt surface treatment.
 - a. Fog Sealcoat.
- B. Related Requirements:
 - 1. Division 31 Section "Earth Moving" for subgrade preparation, fill material, unbound-aggregate base courses, and aggregate pavement shoulders.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include technical data and tested physical and performance properties.
 - 2. Job-Mix Designs: For each job mix proposed for the Work.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and testing agency.
- B. Material Certificates: For each paving material.
- C. Material Test Reports: For each paving material, by a qualified testing agency.
- D. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities by *Washington Department of Transportation (WSDOT)*.
- B. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.

- C. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction – 2020 for asphalt paving work.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Tack Coat: Minimum surface temperature of 50 deg F.
 - 2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 - 3. Asphalt Surface Course: Minimum surface temperature of 40 deg F at time of placement.
 - 4. Slurry Coat (Fog Sealcoat): Comply with weather limitations in ASTM D3910.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. General: Use materials and gradations in conformance with 2018 WSDOT Standard Specifications and AASHTO standards.
- B. Aggregate: Comply with WSDOT Specifications per Section 9-03.9(3) for crushed surfacing.
- C. Mineral Filler: ASTM D 242/D 242M, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

- A. Asphalt Binder: AASHTO M 320, PG 64-22.
- B. Asphalt Cement: ASTM D 3381/D 3381M for viscosity-graded material ASTM D 946/D 946M for penetration-graded material.
- C. Tack Coat: AASHTO M 140 emulsified asphalt, or AASHTO M 208 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- D. Water: Potable.
- E. Fog Seal: ASTM D2397/D2397M or AASHTO M 208 cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.

2.3 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by the EPA, and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073, Grade No. 2, or No. 3.
- C. Joint Sealant: AASHTO M 324, Type I, hot-applied, single-component, polymer-modified bituminous sealant.

2.4 MIXES

- A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes per Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction – 2018 Edition complying with Section 9-03.04 and the following requirements: *WSDOT Standard Specification section 5-04, HMA class ½” designed for 0.3 to 3.0 ESAL’s.*
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Surface Course: ½ inch.
- B. Emulsified-Asphalt Slurry: ASTM D3910, Type 2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Owner’s testing agency shall verify that subgrade is dry and in suitable condition to begin paving.
- B. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Owner’s testing agency, and replace with compacted backfill or fill as directed.
- C. Proceed with paving only after unsatisfactory conditions have been corrected.
- D. Verify that utilities and other items requiring a cut and/or installation beneath the asphalt surface have been completed prior to beginning installation of asphalt.

3.2 PATCHING

- A. Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Placing Patch Material: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.2.1 REPAIRS

- A. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of ¼ inch.
 - 1. Clean cracks and joints in existing hot-mix asphalt pavement.

2. Use emulsified-asphalt slurry to seal cracks and joints less than ¼ inch wide. Fill flush with surface of existing pavement and remove excess.
3. Use hot-applied joint sealant to seal cracks and joints more than ¼ inch wide. Fill flush with surface of existing pavement and remove excess.

3.3 SURFACE PREPARATION

- A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.
- C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.
 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Ensure that prepared subgrade has been proof-rolled and is ready to receive paving. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces.
- D. Asphalt Surface Treatments: Clean surface to be treated of all loose materials and other debris. Grind off all painted stripes & symbols. Fill cracks as required and apply treatment as specified.
 1. The pavement surface shall be cleaned with a road sweeper, power broom or flushed with a water pump-unit to remove dust, dirt, and debris. The pavement surface must be clean and dry before applying the seal. If flushing is required, it should be completed 24 hours prior to the application of the seal to allow for adequate drying.

3.4 PLACING HOT-MIX ASPHALT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - a. *Standard Section – 3.0 inches of HMA over 6.0 inches of compacted base course.*
 2. Place hot-mix asphalt surface course in single lift.
 3. Spread mix at a minimum temperature of 250 deg F.
 4. Begin applying mix on high side of single slopes unless otherwise indicated.
 5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
 2. Complete a section of asphalt base course before placing asphalt surface course.

- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 JOINTS

- A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.6 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 92 percent of maximum theoretical specific gravity (Rice's density) (ASTM D 2041).
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Compact and bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.7 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/2 inch.
 - 2. Surface Course: Plus 1/4 inch, no minus.

- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch.
 - 2. Surface Course (where applicable): 1/8 inch.
- C. Do not begin installation of the base course or asphalt paving until equipment access is fully evaluated for ease of access and "run out" area for trucks and pavers such that placement of HMA is continuous and in the same direction.

3.7.1 SURFACE TREATMENTS

- A. Slurry Seals: Apply slurry coat in a uniform thickness in accordance with ASTM D3910 and allow to cure a minimum of 4 hours, verify with manufacturer.
 - 1. Roll slurry seal to remove ridges and provide a uniform, smooth surface. With fine sand, lightly dust areas receiving excess fog seal.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests (mixture quality testing to confirm asphalt content and gradation) and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549. A minimum of one (1) core samples per day each day that asphalt is placed.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- D. Replace and compact hot-mix asphalt where core tests were taken.
- E. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.
- F. The asphalt lift shall be evaluated for quality of asphalt finish, i.e., areas of "boney" or excessive voids in the surface. The paving contractor shall be responsible for correcting all defects identified in the final surface. The General Contractor, asphalt subcontractor, owner, and landscape architect shall review the defect corrections with the owner determining final acceptance

3.9 WASTE HANDLING

- A. General: Remove all waste material off-site in legal manner, including excess base course and asphalt from installation operations.

END OF SECTION 321216

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes Concrete Paving. Including the Following:
 - 1. Standard Curb.
 - 2. Curb & Gutter.
 - 3. Walks.
 - 4. ADA Detectable Warning Strips.
- B. Related Requirements:
 - 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.
 - 2. Division 31 Section "Earth Moving" for subgrade preparation, grading, and base course.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and concrete paving construction practices.
 - 2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Concrete paving Subcontractor.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified ready-mix concrete manufacturer.

- B. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Fiber reinforcement.
 - 4. Admixtures.
 - 5. Curing compounds.
 - 6. Applied finish materials.
 - 7. Bonding agent or epoxy adhesive.
 - 8. Joint fillers.
- C. Material Test Reports: For each of the following:
 - 1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction – 2018 Edition for concrete work.
- C. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.8 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- B. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60 deformed bars; assembled with clips.
- C. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.
- D. Tie Bars: ASTM A 615/A 615M, Grade 60; deformed.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.4 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C 150/C 150M, gray Portland cement Type I.
 - 2. Fly Ash: ASTM C 618, Class C.
 - 3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
 - 4. Blended Hydraulic Cement: ASTM C 595/C 595M, Type IS, Portland blast-furnace slag cement.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 4S, uniformly graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 1-inch nominal.
- A. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement. Exposed Aggregate: Selected, hard, and durable; washed; free of materials with deleterious reactivity to cement or that cause staining; from a single source, with gap-graded coarse aggregate as follows:
Retain one option in "Aggregate Sizes" Subparagraph below or revise to include one size or a range of gradations if preferred. Coarse-aggregate sizes may range from 1/4 inch (6 mm) to more than 1-1/2 inches (38 mm).

1. Aggregate Sizes: 3/8-to-5/8-inch nominal.
Retain "Aggregate Source, Shape, and Color" Subparagraph below if a particular aggregate is required or to specify details of acceptable aggregates.

2. Aggregate Source, Shape, and Color: Native local aggregate.

B. Air-Entraining Admixture: ASTM C 260/C 260M.

C. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Retarding Admixture: ASTM C 494/C 494M, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

D. Water: Potable and complying with ASTM C 94/C 94M.

2.5 FIBER REINFORCEMENT

A. Reinforcement Fiber: 100 percent virgin alkali-resistant cellulose fibers manufactured for use in concrete pavement for secondary reinforcement. Fiber manufacturer must provide compliance with applicable building codes, ISO 9001 certification of manufacturing facility and complying with ASTM C 1116-08. Fibers shall have the following Characteristics:

1. Water Absorption Up to 80% of the weight of the fiber

2. Specific Gravity 1.10

3. Average fiber length 2.1 mm long

4. Projected fiber diameter 18 um

5. Fiber Tensile Strength 90 – 130 ksi

6. Alkali Resistance High (ASTM D6942)

Coordinate subparagraph and lists below with Part 2 "Manufacturers" Article. Retain "Available" for nonproprietary and delete for semi proprietary specifications.

7. Available Products:

a. Reinforcement Fibers:

1) Buckeye UltraFiber 500, Buckeye Building Fibers, LLC.

2) Approved Equal.

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

1. Available Products:

a. Axim Concrete Technologies; Cimfilm.

b. Burke by Edeco; BurkeFilm.

c. ChemMasters; Spray-Film.

d. Conspec Marketing & Manufacturing Co., Inc.; Aquafilm.

e. Dayton Superior Corporation; Sure Film.

- f. Euclid Chemical Company (The); Eucobar.
 - g. Kaufman Products, Inc.; Vapor Aid.
 - h. Lambert Corporation; Lambco Skin.
 - i. L&M Construction Chemicals, Inc.; E-Con.
 - j. MBT Protection and Repair, ChemRex Inc.; Confilm.
 - k. Meadows, W. R., Inc.; Sealtight Evapre.
 - l. Metalcrete Industries; Waterhold.
 - m. Nox-Crete Products Group, Kinsman Corporation; Monofilm.
 - n. Sika Corporation, Inc.; SikaFilm.
 - o. Symons Corporation; Finishing Aid.
 - p. Vexcon Chemicals, Inc.; Certi-Vex EnvioAssist.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- 1. Available Products:
 - a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
 - b. Burke by Edoko; Aqua Resin Cure.
 - c. ChemMasters; Safe-Cure Clear.
 - d. Conspec Marketing & Manufacturing Co., Inc.; W.B. Resin Cure.
 - e. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
 - f. Euclid Chemical Company (The); Kurez DR VOX.
 - g. Kaufman Products, Inc.; Thinfilm 420.
 - h. Lambert Corporation; Aqua Kure-Clear.
 - i. L&M Construction Chemicals, Inc.; L&M Cure R.
 - j. Meadows, W. R., Inc.; 1100 Clear.
 - k. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
 - l. Symons Corporation; Resi-Chem Clear.
 - m. Tamms Industries Inc.; Horncure WB 30.
 - n. Unitex; Hydro Cure 309.
 - o. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.
- F. Clear Acrylic Sealer: Manufacturer's standard, waterborne, nonyellowing and UV-resistant, membrane-forming, medium-gloss, acrylic copolymer emulsion solution, manufactured for colored concrete, containing not less than 15 percent solids by volume.
- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Advanced Surfaces Inc.; Clear Water Base Sealer.
 - b. Duckback Products; DB6510 Series Mason's Select Clear Concrete Sealer-Satin Finish.
 - c. H&C Concrete Care Products; Shield-Crete Clear Glaze.
 - d. Scofield, L. M. Company; CEMENTONE Clear Sealer.
 - e. Symons by Dayton Superior; Decorative Sealer WB.
 - f. Silencure by ChemMasters.
 - g. Pencure OTC by W.R. Meadows SealTight.

2.7 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy-Bonding Adhesive: ASTM C 881/C 881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
 - 1. Types I and II, nonload bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

- D. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a depth of 1/8 to 1/4 inch.
1. Available Products:
 - a. Burke by Edeco; True Etch Surface Retarder.
 - b. ChemMasters; Exposee.
 - c. Conspec Marketing & Manufacturing Co., Inc.; Delay S.
 - d. Euclid Chemical Company (The); Surface Retarder S.
 - e. Kaufman Products, Inc.; Expose.
 - f. Metalcrete Industries; Surfard.
 - g. Nox-Crete Products Group, Kinsman Corporation; Crete-Nox TA.
 - h. Scofield, L. M. Company; Lithotex.
 - i. Sika Corporation, Inc.; Rugasol-S.
 - j. Vexcon Chemicals, Inc.; Certi-Vex Envioset.
 - k. Insert manufacturer's name, product name or designation.

2.8 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 2. When automatic machine placement is used, determine design mixtures, and obtain laboratory test results that comply with or exceed requirements.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash or Pozzolan: 25 percent.
 2. Slag Cement: 50 percent.
 3. Combined Fly Ash or Pozzolan, and Slag Cement: 50 percent, with fly ash or pozzolan not exceeding 25 percent.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
1. Air Content: 6 percent plus or minus 1-1/2 percent for 1-inch nominal maximum aggregate size.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture, plasticizing and retarding admixture in concrete as required for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- F. Fiber Reinforcement: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.5 lb./cu. yd.
- G. Concrete Mixtures: Normal-weight concrete.
1. Compressive Strength (28 Days): 4500 psi.
 2. Maximum W/C Ratio at Point of Placement: 0.45.
 3. Slump Limit: 4 inches, plus or minus 1 inch.

2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

2.10 ADA DETECTABLE WARNING STRIPS

- A. Tactile Warning Tile: Provide tactile warning strip that complies with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (ADA). The tile shall be an epoxy polymer composition with an ultra-violet stabilized coating. The tile shall incorporate an in-line dome pattern of truncated domes 0.2" in height, 0.9" at the base, and 0.4" diameter at the top of domes spaced 2.35" nominal as measured on a diagonal and 1.70" nominal as measured side by side.
 - 1. Dimensions:
 - a. Length and Width: Length as required x 24" width nominal.
 - b. Depth: 1.400" $\pm$ 5% max.
 - c. Face Thickness: 0.1875" $\pm$ 5% max.
 - d. Warpage of Edge: $\pm$ 0.5% max.
 - 2. Color:
 - a. Yellow or City Approved Color
 - 3. Available Products:
 - a. Engineered Plastics, Inc. – "Armor-Tile."
 - b. Tuf-Tile.
 - c. Advantage Tactile.
 - d. Approved Equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subgrade surface below concrete paving to identify soft pockets and areas of excess yielding where physically possible.
 - 1. Completely proof-roll subgrade in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded vehicle.
 - 3. Where access is limited for proof-rolling, alternate methods will be approved.
 - 4. Correct base with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Division 31 Section "Earth Moving."

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted base course surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch overlap of adjacent mats.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
 - 1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 - 2. Provide tie bars at sides of paving strips where indicated.
 - 3. Butt Joints: Use epoxy-bonding adhesive at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
 - 5. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 40 feet unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.

4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 5. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 3/8-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
 3. Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast in.
- B. Moisten base to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- C. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- D. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- F. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- G. Screed paving surface with a straightedge and strike off.
- H. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- I. Curbs: Use design mixture for placement. Produce curbs to required cross section, lines, grades, finish, and jointing.

3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

3.8 FINISH

- 1. Fine to Medium Textured Broom Finish: Provide fine to medium texture.

3.9 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb./sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing moisture-retaining-cover curing compound or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.10 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8-inch, minus 1/4 inch.
 - 3. Surface: Gap below 10-feet-long; unleveled straightedge not to exceed 1/4 inch.
 - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of tie bar.
 - 5. Lateral Alignment and Spacing of Dowels: 1 inch.
 - 6. Vertical Alignment of Dowels: 1/4 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: Plus 1/4 inch, no minus.

10. Joint Width: Plus 1/8 inch, no minus.

3.11 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain at least one composite sample for each 40-cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 - 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 - 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- I. Prepare test and inspection reports.

3.12 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with Portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes painted markings applied to asphalt pavement.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to marking pavement including, but not limited to, the following:
 - a. Pavement aging period before application of pavement markings.
 - b. Review requirements for protecting pavement markings, including restriction of traffic during installation period.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include technical data and tested physical and performance properties.
- B. Shop Drawings: For pavement markings.
 - 1. Indicate pavement markings, colors, lane separations, defined parking spaces, and dimensions to adjacent work.
 - 2. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Samples: For each exposed product and for each color and texture specified; on rigid backing, 8 inches square.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Washington State Department of Transportation's (WSDOT) standard specifications for pavement-marking work.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.2 PAVEMENT-MARKING PAINT

- A. Pavement-Marking Paint: Latex, waterborne emulsion, lead, and chromate free, ready mixed, complying with FS TT-P-1952, Type II, with drying time of less than 45 minutes.
 - 1. Color: White, Yellow, Blue, and as indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that pavement is dry and in suitable condition to begin pavement marking according to manufacturer's written instructions.
- B. Proceed with pavement marking only after unsatisfactory conditions have been corrected.

3.2 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Architect.
- B. Allow paving to age for a minimum of 1 day before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.
 - 1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to pavement. Mask an extended area beyond edges of each stencil to prevent paint application beyond stencil. Apply paint so that it cannot run beneath stencil.

3.3 PROTECTING AND CLEANING

- A. Protect pavement markings from damage and wear during remainder of construction period.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 321723

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes planting soils specified by composition of the mixes.
- B. Related Requirements:
 - 1. Division 31 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Division 31 Section "Earth Moving" for planting soil installation.
 - 3. Division 32 Section "Turf and Grasses" for placing planting soil for turf and grasses.
 - 4. Soils Management Plan

1.3 ALLOWANCES

- A. Preconstruction and field quality-control testing are part of testing and inspecting allowance.

1.4 DEFINITIONS

- A. AAPFCO: Association of American Plant Food Control Officials.
- B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended, or unamended soil as indicated.
- C. CEC: Cation exchange capacity.
- D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.
- E. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, stems, twigs, and detritus material.
- F. Imported Soil: Soil that is transported to Project site for use.
- G. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- H. NAPT: North American Proficiency Testing Program. An SSSA program to assist soil-, plant-, and water-testing laboratories through interlaboratory sample exchanges and statistical evaluation of analytical data.
- I. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."
- J. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

- K. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.
- L. SSSA: Soil Science Society of America.
- M. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- N. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- O. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil."
- P. USCC: U.S. Composting Council.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Include recommendations for application and use.
 2. Include test data substantiating that products comply with requirements.
 3. Include sieve analyses for materials.
 4. Material Certificates: For each type of imported soil, soil amendment and fertilizer before delivery to the site, according to the following:
 - a. Manufacturer's qualified testing agency's certified analysis of standard products.
 - b. Analysis of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SUIP #25.
 - c. Analysis of nonstandard materials, by a qualified testing agency, made according to SSSA methods, where applicable.
- B. Samples: For each bulk-supplied material, 1-quart volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Owner will engage a qualified testing agency to perform preconstruction soil analyses on existing, on-site soil.
- B. Preconstruction Soil Analyses: For each unamended soil type, perform testing on soil samples and furnish soil analysis and a written report containing soil-amendment and fertilizer recommendations by a qualified testing agency performing the testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.
 1. Have testing agency identify and label samples and test reports according to sample collection and labeling requirements.

1.9 SOIL-SAMPLING REQUIREMENTS

- A. General: Extract soil samples according to requirements in this article.
- B. Sample Collection and Labeling: Have samples taken and labeled by Contractor.
 - 1. Number and Location of Samples: Minimum of three representative soil samples from varied locations for each soil to be used or amended for landscaping purposes.
 - 2. Procedures and Depth of Samples: According to USDA-NRCS's "Field Book for Describing and Sampling Soils."
 - 3. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

1.10 TESTING REQUIREMENTS

- A. General: Perform tests on soil samples according to requirements in this article.
- B. Physical Testing:
 - 1. Soil Texture: Soil-particle, size-distribution analysis by one of the following methods according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods":
 - a. Sieving Method: Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
 - b. Hydrometer Method: Report percentages of sand, silt, and clay.
 - 2. Total Porosity: Calculate using particle density and bulk density according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
 - 3. Water Retention: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
 - 4. Saturated Hydraulic Conductivity: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods"; at 85% compaction according to ASTM D 698 (Standard Proctor).
- C. Chemical Testing:
 - 1. CEC: Analysis by sodium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
 - 2. Clay Mineralogy: Analysis and estimated percentage of expandable clay minerals using CEC by ammonium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 1- Physical and Mineralogical Methods."
 - 3. Metals Hazardous to Human Health: Test for presence and quantities of RCRA metals including aluminum, arsenic, barium, copper, cadmium, chromium, cobalt, lead, lithium, and vanadium. If RCRA metals are present, include recommendations for corrective action.
 - 4. Phytotoxicity: Test for plant-available concentrations of phytotoxic minerals including aluminum, arsenic, barium, cadmium, chlorides, chromium, cobalt, copper, lead, lithium, mercury, nickel, selenium, silver, sodium, strontium, tin, titanium, vanadium, and zinc.
- D. Fertility Testing: Soil-fertility analysis according to standard laboratory protocol of SSSA NAPT WERA-103, including the following:
 - 1. Percentage of organic matter.
 - 2. CEC, calcium percent of CEC, and magnesium percent of CEC.
 - 3. Soil reaction (acidity/alkalinity pH value).
 - 4. Buffered acidity or alkalinity.
 - 5. Nitrogen ppm.
 - 6. Phosphorous ppm.
 - 7. Potassium ppm.
 - 8. Manganese ppm.
 - 9. Manganese-availability ppm.

10. Zinc ppm.
11. Zinc availability ppm.
12. Copper ppm.
13. Sodium ppm and sodium absorption ratio.
14. Soluble-salts ppm.
15. Presence and quantities of problem materials including salts and metals cited in the Standard protocol. If such problem materials are present, provide additional recommendations for corrective action.
16. Other deleterious materials, including their characteristics and content of each.

E. Recommendations: Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated to produce satisfactory planting soil suitable for healthy, viable plants indicated. Include, at a minimum, recommendations for nitrogen, phosphorous, and potassium fertilization, and for micronutrients.

1. Fertilizers and Soil Amendment Rates: State recommendations in weight per 1000 sq. ft. for 6-inch depth of soil.
2. Soil Reaction: State the recommended liming rates for raising pH or sulfur for lowering pH according to the buffered acidity or buffered alkalinity in weight per 1000 sq. ft. for 6-inch depth of soil.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable.
- B. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Do not move or handle materials when they are wet or frozen.
 4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 PLANTING SOILS SPECIFIED BY COMPOSITION

- A. General: Soil amendments, fertilizers, and rates of application specified in this article are guidelines that may need revision based on testing laboratory's recommendations after preconstruction soil analyses are performed.
- B. Planting-Soil Type: Existing, on-site surface soil, to be removed if determined by Geotechnical Engineer as unsuitable – Refer to Soils Management Plan; and relocated to on-site repository. Suitable on-site topsoil to be modified to produce viable planting soil.
- C. Planting-Soil Type: Imported, naturally formed soil from off-site sources and consisting of sandy loam and sand mixed with topsoil according to USDA textures; and modified to produce viable planting soil.
 1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 12 inches deep, not from bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and brome grass.

2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6.1 to 7.8 and minimum of 4 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.
3. Unacceptable Properties: Clean soil of the following:
 - a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
 - b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.
 - c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 1 inch in any dimension.
4. The imported planting soil shall meet or exceed the following requirements:
 - a. Material passing: 1" sieve 98 percent
 - b. Material passing: No. 4 sieve 80 percent
 - c. Material passing: No. 10 sieve 70 percent
 - d. Clay 5 to 15 percent
 - e. Silt 10 to 40 percent
 - f. Organic Matter 4 to 10 percent
 - g. pH 6.1 to 7.8
 - h. Soluble Salts 1.5 mmho/cm

2.2 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
 1. Feedstock: May include sewage sludge or animal waste.
 2. Reaction: pH of 5.5 to 8.
 3. Soluble-Salt Concentration: Less than 10 dS/m.
 4. Moisture Content: 40 percent by weight.
 5. Organic-Matter Content: 30 to 40 percent of dry weight.
 6. Particle Size: Minimum of 98 percent passing through a 3/4-inch sieve.
 7. Approved Product:
 - a. Eco Premium Compost or approved equal.

2.3 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.
- C. Proceed with placement only after unsatisfactory conditions have been corrected.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

- A. Excavation: Excavate soil from designated area(s) to a depth indicated in Division 31 Section "Earth Moving" and stockpile until amended.
- B. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
- C. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.
- D. Screening: Pass unamended soil through a 1" inch sieve to remove large materials.

3.3 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 6 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply, add soil amendments, and mix approximately half the thickness of unamended soil over prepared, loosened subgrade according to "Mixing" Paragraph below. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil.
- C. Mixing:
 - 1. Spread unamended soil to total depth of:
 - a. 6 inches for turf areas and 12 inches for landscape planting areas.
 - b. But not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 2. Amendments: Apply soil amendments, evenly on surface, and thoroughly blend them with unamended soil to produce planting soil.
 - a. Mix fertilizer with planting soil no more than seven days before planting.
 - 3. Lifts: Apply and mix unamended soil and amendments in lifts not exceeding 6 inches in loose depth for material compacted by compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- D. Compaction: Compact each blended lift of planting soil to 82 to 87 percent of maximum Standard Proctor density according to ASTM D 698 and tested in-place except where a different compaction value is indicated on Drawings. If required, loosen compacted soil to comply with specified compaction range.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 APPLYING COMPOST TO SURFACE OF PLANTING SOIL

- A. Application: Apply compost component of planting-soil mix to surface of in-place planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Finish Grading: Grade surface to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform the following tests:
 - 1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 10,000 sq. ft. of in-place soil or part thereof, minimum of 3 tests.
- C. Soil will be considered defective if it does not pass tests and inspections.
- D. Prepare test reports.
- E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

3.6 PROTECTION

- A. Protection Zone: Identify protection zones according to Section 5.11 "Protection of Existing Structures, Equipment, Vegetation, Utilities and Improvements."
- B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- C. If planting soil or subgrade is over compacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Landscape Architect and replace contaminated planting soil with new planting soil. Compactive levels shall meet as specified requirements.

3.7 CLEANING

- A. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

END OF SECTION 329113

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Turf seeding.
 - 2. Turf sodding.
 - 3. Erosion Control Materials
 - 4. Grass Pavers
- B. Related Requirements:
 - 1. Division 32 Section "Soil Preparation" – Planting soil.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Division 32 Section "Soil Preparation" and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

- C. Product Certificates: For fertilizers, from manufacturer.
- D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
 - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
 - 2. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 3. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Lawncare Manager.
 - c. Landscape Industry Certified Lawncare Technician.
 - 4. Pesticide Applicator: State licensed, commercial.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

- B. Seed Species: Seed of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed. All species shall be ranked in the top 15% of NTEP Trials in the northwest for turf seed test rankings with proven positive results for wear, color, drought tolerance and disease tolerance.
 - 1. Grass Mix for General Turf Areas and Drainage Basins:
 - a. Elite Landscape Lawn Blend from L & H Seeds or approve equal.

2.2 TURFGRASS SOD

- A. Turfgrass Sod: Certified, Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
- B. Turfgrass Species: Sod of grass species as follows, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.3 percent weed seed. All species shall be ranked in the top 15% of NTEP Trials in the northwest for turf seed test rankings with proven results for wear, color, shade tolerance, drought tolerance and disease tolerance:
 - 1. Kentucky bluegrass (*Poa pratensis*), a minimum of three cultivars.
 - a. 70 – 80 percent.
 - 2. Perennial Ryegrass (*Lolium perenne*).
 - a. 20 - 30 percent.

2.3 PLANTING SOILS

- A. Planting Soil: Refer to Division 32 Section "Soil Preparation."

2.4 MULCHES

- A. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic and free of plant-growth or germination inhibitors; with a maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- B. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.5 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Coconut Coir Logs: Coir Fiber with Coir Netting. Include manufacturer's recommended steel wire staples, 6 inches long.
- C. Erosion-Control Wattles:
 - 1. Straw Wattle: Straw interior with Poly netting. Include manufacturer's recommended anchorage system for slope conditions.
 - 2. Coir Wattle: Bristle Coir Twine netting on the exterior with Mattress Coir Fibers on the interior. Include manufacturer's recommended anchorage system for slope conditions.

2.6 GRASS-PAVING MATERIALS

- A. Grass Paving: Concrete paver units designed to contain small areas of soil and enhance the ability of turf to reduce erosion, support vehicular and pedestrian traffic, manufacturer's standard nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Mutual Materials: Turfstone.
 - b. Hanover Architectural Products: Ecogrid.
- B. Base Course: Sound crushed stone or gravel complying with Division 32 Section "Earth Moving" for base-course material.
- C. Sand: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C 33/C 33M for fine aggregate.
- D. Sandy Loam Soil Mix: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C 33/C 33M for fine aggregate blended with planting soil. Use blend consisting of 2/3 sand and 1/3 planting soil.

2.7 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.8 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 3. Uniformly moisten excessively dry soil that is not workable, or which is dusty.
 4. Suspend planting operations until all compaction issues have been corrected.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from sodding operations.
 - 2. Protect grade stakes set by others until directed to remove them.

3.3 TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Division 32 Section "Soil Preparation."
- B. Placing Planting Soil: Place and mix planting soil in place over exposed subgrade.
 - 1. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. Protect drainage inlets with approved BMP's to aid in reducing erosion of the newly graded and seeded areas.
- C. For erosion-control blanket, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- D. For wattle installation, refer to manufacturers' details and charts regarding proper wattle installation and spacing (based on steepness of the slope).
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 PREPARATION FOR GRASS-PAVING MATERIALS

- A. Reduce subgrade elevation soil to allow for thickness of grass-paving system. Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade so that installed paving is within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions.
- B. Install base course and sandy loam soil mix as recommended by paving-material manufacturer for site conditions and according to details indicated on Drawings. Compact according to paving-material manufacturer's written instructions.
- C. Install pavers flush to proposed finish grade, extend a minimum of two (2) pavers into the bottom of the swale and secure according to details.
- D. Before planting, fill cells of pavers with sandy loam soil mix and compact according to manufacturer's written instructions. Install sod pieces into cells, cut pieces so they fit tightly within the cells.

- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.6 HYDROSEEDING

- A. General: Seed application shall be by hydro-seeding.
- B. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500 lb./acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.
- C. Sow seed at a total rate of 8 lbs./1000 sq. ft.
- D. Water newly planted areas and keep moist until grass is established.

3.7 SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across slopes exceeding 1:4.
- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.8 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 - 2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow Kentucky bluegrass to a height of 1-1/2 to 2 inches.
 - 2. Provide a minimum of five (5) mowings before end of maintenance period.
- D. Turf Post-fertilization: Apply commercial fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that provides:
 - a. Actual nitrogen of at least 2 lb./1000 sq. ft. to turf area.
 - b. Actual phosphorus of at least 1 lb./1000 sq. ft. to turf area.
 - c. Actual potassium of at least 1 lb./1000 sq. ft. to turf area.
 - 2. Fertilizing:
 - a. Apply fertilizer in accordance with manufacturer's instructions.
 - b. Sweep all hard surfaces of fertilizer overthrow.
 - c. Continue fertilizing until end of maintenance period. Assume a minimum of three (3) fertilizations from planting to end of the maintenance period.

3.9 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
 - 2. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

3.10 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.11 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

3.12 MAINTENANCE SERVICE

- A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
 - 1. Sodded Turf: 45 days from date of initial installation.
 - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.
 - 2. Seeded Turf: 60 days from date of initial installation.
 - a. When initial maintenance period has not elapsed before end of planting season, or if turf is not fully established, continue maintenance during next planting season.

3.13 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner, or incidents that are beyond Contractor's control.
 - 2. Warranty Periods from date of initial installation.
 - a. Twelve (12) months.

END OF SECTION 329200