

Plaza Del Prado Condominium Association Inc.
18051 Biscayne Boulevard
Aventura, FL-33160

West Parking Garage Repaired Concrete Inspection
Phase I & Phase II

Narrative Statement wrt/ Concrete Repairs

Prepared By

S&D Engineering and Construction, Inc
1031 NW 31st Avenue,
Pompano Beach, FL 33069

April 03rd, 2022



Figure 1: Plaza Del Prado West Garage – Aerial View

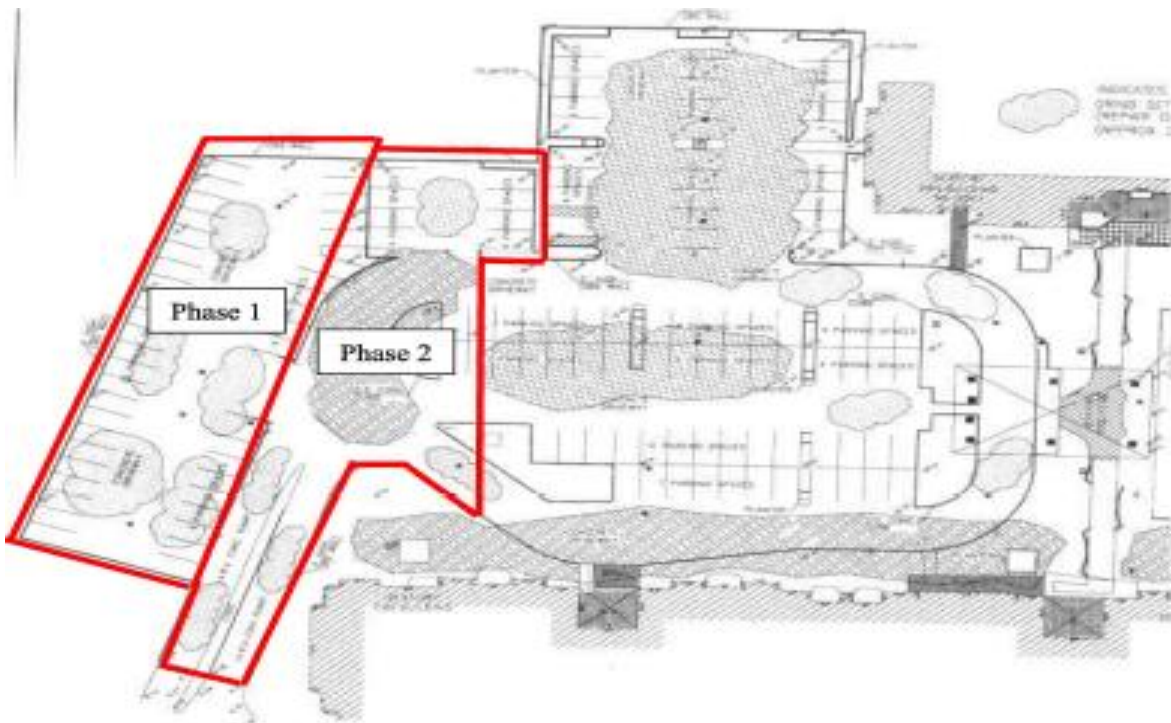


Figure 2: Plaza Del Prado West Garage Phase I & II – Plan View



OBJECTIVE

The Plaza Del Prado West Garage was divided into Six Phases for the purpose of scheduling, logistics and execution of a previously planned repair project. S&D Engineering and Construction, Inc. was informed by the Association's representative(s) that, the concrete repairs were completed by Investcom Construction LLC (a Contractor) at Phases I & II as shown on Figure 2. S&D Engineering and Construction, Inc. was tasked with evaluating the completed repairs.

S&D Engineering and Construction, Inc. was authorized by the Board of Directors of Plaza Del Prado Condominium Association, Inc. on March 22nd, 2022 to perform intrusive investigation at the Plaza Del Prado West Garage located at above mentioned address.

S&D Engineering and Construction, Inc performed demolition at (Six) sites of recent concrete repairs; these locations were inside the Phase I & Phase II areas as shown in Figure 2. The purpose of the demolition was to visually observe the sites of newly repaired concrete (the 'repair sites'). During the demolition, members of Investcom Construction LLC (a Contractor) & Plaza Del Prado Property Manager were present at the site. The demolition was performed by S&D Engineering and Construction, Inc.'s crew.

Demolition was conducted to expose previous repairs at six sites, deemed to be generally representative of the various modalities of recent repairs to the areas of interest. These exposed areas were visually observed and were evaluated in accordance with the applicable codes and standards as listed below. Existing conditions at the newly repaired concrete areas were visually observed and evaluated after demolition, as was deemed necessary based on preliminary visual observations of surface conditions and based on our preliminary investigation including verbal communication with the property manager.

APPLICABLE CODES & STANDARDS:

- Florida Building Code 2020, 7th Edition
- ACI 562-19 "Code requirement for Assessment, repair and rehabilitation of existing Structures".
- ACI 364.10T "Rehabilitation of structure with Reinforcement Section Loss"
- ACI 364.6T- 02(11) "Concrete Removal in Repairs Involving Corroded Reinforcing Steel"
- Guideline No. 310.1R-2008 (formerly No. 03730) International Concrete Repair Institute



DISCLAIMER

The observations performed during the demolition of previously repaired areas at Phase I & Phase II were conducted without any testing. No expanded details or any kind of laboratory tests have been performed at this time; however, this document should provide the Client with sufficient findings related to the repair sites located in Phase I & Phase II areas. Consequently, some system-specific assumptions were made regarding the existing conditions and structural integrity of the existing Garage Structure. Furthermore, the findings within this document have been based on the information discovered during the intrusive investigation of six locations and the information provided by the property manager. If additional information is discovered concerning the Garage concrete deterioration, the assumptions, conclusions and recommendations presented herein may require re-assessment.

“As routine matter, in order to avoid possible misunderstanding, nothing in this report should be construed directly or indirectly as a guarantee or warranty for any portion of the structure(s). To the best of my knowledge and ability, and within a reasonable degree of engineering certainty, this report contains an accurate representation of the present condition of the Garage Structural components investigated, based upon the careful evaluation of the observed conditions and documentation as provided by property owner’s representative(s), to the extent reasonably possible.”



CAUSE OF REINFORCED CONCRETE DETERIORATION:

Concrete spalling consists of the complete detachment and separation of pieces of concrete from the main structure, resulting in greater exposure of the reinforcing steel within the concrete, to oxidizing agents that are naturally occurring in the atmosphere and in water. When the rebar becomes exposed to the exterior contaminants in the air, as well as other chemical elements it is prone to deterioration and corrosion. Corroded rebar expands and introduces additional pressure into the structure; thus, it could potentially cause additional concrete cracking and spalling (See Figure 1).

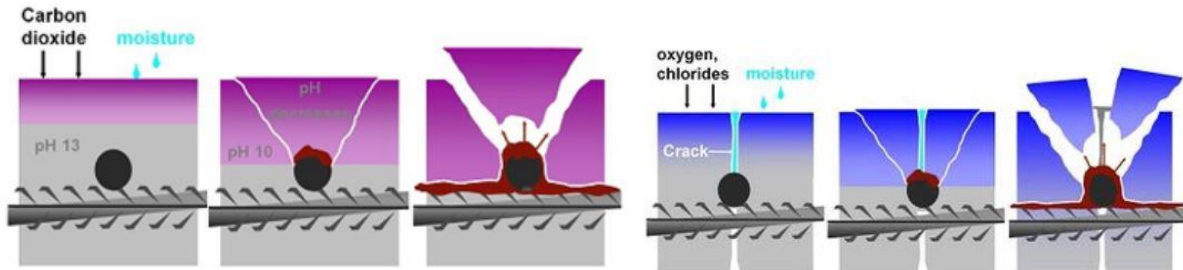


Figure 3

Spalling of concrete is primarily the result of corrosion of the reinforcing steel and/or embedded steel objects such as clips, chairs, anchors, etc. When steel corrodes, the oxidized steel (rust) has a greater volume than the non-oxidized steel, creating internal, tensile forces in the concrete. Concrete is unable to handle the tensile forces and, consequently, the pieces between the corroded steel and the nearest surface will break off, a process known as “spalling”. Concrete cracks allow further moisture to infiltrate and reach the reinforcement. Once moisture reaches the reinforcement steel, the process of steel corrosion greatly accelerates due to increased availability of oxidizing agents. Cracks and spalling allow for greater amounts of moisture, water and oxidizing agents to reach the steel therefore accelerated steel and concrete deterioration rates result.

Deteriorated reinforced concrete and corroded steel reinforcement require repairs to avoid further reinforcement deterioration and potential structural failure. Severely corroded reinforcing steel with loss of steel cross section reduces the reinforced concrete member’s structural load capacity and require repairs to avoid further deterioration and potential structural failure.

It is often the case that, after an area on the surface of the concrete is marked for demolition, “chasing” of the corroded steel results in the demolition for repairs, of a larger area than was initially marked for demolition based on surface observations and sounding.

A minimum depth of concrete cover at the steel reinforcement is necessary to increase the travel path and hence the time for moisture and oxidizing agents to permeate the concrete and find their way to the reinforcement steel. Where the concrete cover is insufficient, the process of reinforcement corrosion, and ultimately, spalling concrete, can occur early on in the life of the structural member. Insufficient concrete cover is a factor that can and often does contribute to early spalling of the concrete.



REPAIR METHODS FOR DETERIORATED REINFORCED CONCRETE:

The generally accepted method of concrete repair is to remove the concrete surrounding the corroded steel, abrasively clean the steel, coat it with a corrosion-resistant material and/or provide corrosion-resistant enhancements in the concrete, replace the concrete, and apply a water proofing membrane to the surface. It is often the case that, after an area on the surface of the concrete is marked for demolition, “chasing” of the corroded steel results in the demolition for repairs, of a larger area than was initially marked for demolition based on surface observations and sounding. Abrasively cleaning the steel (sand blasting) is an extremely important step toward removing chlorides, scale, and rust. Generally, corroded steel with an excess of a 15% cross-section loss requires that new steel be spliced into the structure, to be decided on a case-by-case basis. Repair concrete is specifically chosen to have low shrinkage qualities and to match the existing concrete. Water content in repair concrete is generally held to a maximum water/cement ratio of 0.40 or less, to provide for denser, less permeable concrete. In addition, corrosion inhibitors can be added to the repair concrete to help resist chlorides and increase the time to imitation of steel corrosion. Finally, we recommend for horizontal structural elements exposed to weather and/or drainage, that a waterproofing/water-resistant membrane, be applied over the entire surface to keep water out. The above recommendations are accepted standards of the American Concrete Institute (ACI) and the International Concrete Repair Institute (ICRI). Depending on the loads, member sizes and reinforcing steel, the installation of shoring may be required prior to commencing with demolition, to be decided on a case-by-case basis. Deteriorated concrete repair and crack repairs are primarily required due to three main factors:

- Assurance of Building structural component stability.
- Prevention of further deterioration to the concrete and reinforcement.
- Retention of the aesthetics and functionality.

From these perspectives, considering structural stability concerns, both deteriorated concrete and concrete cracks are indicative of an increment of stresses and/or a yielding of reinforcing bars; therefore, concrete deterioration and cracking becomes a major cause of concern when it tends to stress or yield the main reinforcement, which is required for resistance of the structural member to anticipated loads. From a progressive deterioration perspective, concrete deterioration repairs and crack repairs are essential because it reduces the service life of structures by permitting more rapid penetration of carbonation and allowing chloride ions, moisture and oxygen to reach the reinforcing steel. Concrete deterioration and cracks also accelerate the corrosion onset that, with time, becomes more wide-spread due to the penetration of water and chloride ions in un-cracked concrete. Therefore, the repair of deteriorated concrete and cracks becomes mandatory in order to prevent the structure from further deterioration, provided the crack widths exceed the tolerable values as shown in Figure 3 (ACI 224R-01 table 4.1).

Exposure condition	Crack width	
	in.	mm
Dry air or protective membrane	0.016	0.41
Humidity, moist air, soil	0.012	0.30
Deicing chemicals	0.007	0.18
Seawater and seawater spray, wetting and drying	0.006	0.15
Water-retaining structures†	0.004	0.10

Figure 1: Allowable Crack Widths in Concrete



FINDINGS:

For the purpose of the investigation, S&D Engineering and Construction, Inc. chose six exploration sites in Phases I & Phase II of the garage. The six sites chosen for inspection inside Phases I & Phase II are as follows:

- Two locations at the newly repaired garage overhead Concrete Slab
- One location at un-repaired Concrete Joist
- One location at the newly repaired Concrete Column
- Two locations at newly repaired garage Concrete Beams

Concrete Overhead Slab Demolition Location I:

(Refer to Photographs 1, 2 & 3)

A section of garage overhead slab was demolished at a previous repair site to expose the repaired concrete, the existing (original) concrete surface at the repair site, the interface of the original concrete surface and the repair concrete, and the steel reinforcement inside the overhead slab.

Based on the visual observations, it seems apparent that the exposed reinforcement inside the overhead slab was corroded at the time of our investigation & inspection, with a thick oxidized steel layer that appears to be the un-cleaned, untreated, corroded steel that caused the cracking &/or spalling at this damage site (refer to the “Cause of Reinforced Concrete Deterioration” section above). It also seems apparent that the corroded steel continues further into the concrete slab than the area that was opened up during demolition for this repair.

For this repair, we would in part require 1) “chasing” of the steel corrosion at the demolition site requiring opening a further area of the concrete slab than was here demolished during the repair, 2) mechanical removal of the oxidized steel by-product down to clean steel, 3) doweling additional steel if required for cross-section tensile steel strength, 4) surface preparation of the corroded steel and the application of an approved bonding agent / primer / rust inhibitor to the steel, 5) use of an approved special-purpose repair concrete containing inhibitor(s) and specified, controlled, moisture content. It thus seems apparent that this repair was not performed in accordance with generally accepted standards &/or applicable Codes & Standards (refer to the “Repair Methods for Deteriorated Reinforced Concrete” section above).

Concrete Overhead Slab Demolition Location II:

(Refer to Photographs 4, 5 & 6)

A section of garage overhead slab was demolished at a previous repair site to expose the repair concrete, the existing (original) concrete surface at the repair site, the interface of the original concrete surface and the repair concrete, and the steel reinforcement inside the overhead slab. Notably, this particular concrete repair site is co-incident with a longitudinal crack in the concrete slab that appears to have been repaired in



some fashion as evidenced by the observation of repair mortar along the crack (see Photo No. 4)
Based on the visual observations, it seems apparent that the exposed reinforcement inside the overhead slab was minimally corroded at the time of our investigation & inspection, exhibiting an oxidized steel layer that appears to be limited to minor surface corrosion. It also seems apparent that the crack in the concrete slab was not repaired with epoxy based on the observations at the time of our investigation. There was evidence observed, throughout the parking garage, of water penetrating through the slab cracks into the garage, after the crack repairs were performed.

For this repair and for other slab crack repairs we would require repairs using epoxy injection, typically. It thus seems apparent that this repair was not performed in accordance with generally accepted standards &/or applicable Codes & Standards.

Concrete Joist Demolition Location III:

(Refer to Photographs 7 & 8)

A section of concrete joist supporting the garage overhead slab was demolished, to expose the steel reinforcement.

Based on the visual observations, it seems apparent that the exposed reinforcement inside the concrete joist was corroded at the time of our investigation & inspection, with a thick oxidized steel layer and loss of steel cross-section. It also seems apparent that the corroded steel continues further into the concrete member than the area that was opened up during our investigation.

The damaged joist observed at this location ***was not repaired*** during the previous concrete repair project. The reinforced concrete joist is in need of repair in conformance with generally accepted industry standards and applicable Codes for the evaluation of deteriorated reinforced concrete.

Concrete Column Demolition Location VI:

(Refer to Photographs 9 & 10)

A section of concrete column supporting a beam was demolished at a previous repair site to expose the repair concrete, the existing (original) concrete surface at the repair site, the interface of the original concrete surface and the repair concrete, and the steel reinforcement inside the column.

Based on the visual observations, it seems apparent that the exposed reinforcement inside the column was corroded at the time of our investigation & inspection, with an oxidized steel layer that appears to be the un-cleaned, untreated, corroded steel that caused the cracking &/or spalling at this damage site (refer to the “Cause of Reinforced Concrete Deterioration” section above). It also seems apparent that the corroded steel continues further into the concrete member than the area that was opened up during demolition for this repair.



For this repair, we would in part require 1) “chasing” of the steel corrosion at the demolition site requiring opening a further area of the concrete member than was here demolished during the repair, 2) mechanical removal of the oxidized steel by-product down to clean steel, 3) doweling additional steel if required for cross-section steel strength, 4) surface preparation of the corroded steel and the application of an approved bonding agent / primer / rust inhibitor to the steel, 5) use of an approved special-purpose repair concrete containing inhibitor(s) and specified, controlled, moisture content. It thus seems apparent that this repair was not performed in accordance with generally accepted standards &/or applicable Codes & Standards (refer to the “Repair Methods for Deteriorated Reinforced Concrete” section above).

Concrete Beam Demolition Location V:

(Refer to Photographs 11, 12 & 13)

A section of concrete beam was demolished at a previous repair site to expose the repair concrete, the existing (original) concrete surface at the repair site, the interface of the original concrete surface and the repair concrete, and the steel reinforcement inside the beam. Notably, a large chunk of concrete came loose and fell off during demolition.

Based on the visual observations, it seems apparent that the exposed reinforcement inside the beam was corroded at the time of our investigation & inspection, with an oxidized steel layer that appears to be the un-cleaned, untreated, corroded steel that caused the cracking &/or spalling at this damage site (refer to the “Cause of Reinforced Concrete Deterioration” section above). It also seems apparent that the corroded steel continues further into the concrete member than the area that was opened up during demolition for this repair.

For this repair, we would in part require 1) “chasing” of the steel corrosion at the demolition site requiring opening a further area of the concrete member than was here demolished during the repair, 2) mechanical removal of the oxidized steel by-product down to clean steel, 3) doweling additional steel if required for cross-section steel strength, 4) surface preparation of the corroded steel and the application of an approved bonding agent / primer / rust inhibitor to the steel, 5) use of an approved special-purpose repair concrete containing inhibitor(s) and specified, controlled, moisture content. It thus seems apparent that this repair was not performed in accordance with generally accepted standards &/or applicable Codes & Standards (refer to the “Repair Methods for Deteriorated Reinforced Concrete” section above).

Concrete Beam Demolition Location VI:

(Refer to Photographs 14, 15 & 16)

A section of concrete beam was demolished at a previous repair site to expose the repair concrete, the existing (original) concrete surface at the repair site, the interface of the original concrete surface and the repair concrete, and the steel reinforcement inside the beam. This beam is located at the perimeter of the garage (See Photo No. 14).



Based on the visual observations, it seems apparent that the exposed reinforcement inside the beam had minor corrosion. The repairs performed to the concrete beam appeared to be sub-standard. It thus seems apparent that this repair was not performed in accordance with generally accepted standards &/or applicable Codes & Standards (refer to the “Repair Methods for Deteriorated Reinforced Concrete” section above).



CONCLUSION:

It is S&D Engineering and Construction, Inc.'s recommendation that, all deteriorated concrete structural and non-structural components of the garage should be restored in conformance with generally accepted industry standards, and the requirements of the current Florida Building Code, ACI Code and ICRI Code. This applies to all visually observable sites of deterioration, to damage sites that are not immediately observable but will be uncovered by probing and demolition during the repair project, and to those sites that were previously repaired, as required for reasonable assurance of properly repaired structural members and structure.

Based on the visual observations of the (Six) demolished areas of previously performed repairs inside Phase I & Phase II, it is our opinion that most of these repairs are generally not conforming to generally accepted standards &/or applicable Codes & Standards (refer to the "Repair Methods for Deteriorated Reinforced Concrete" section above), and that these repairs are not sufficient, requiring repair once more of these same sites, including proper concrete restoration of spalls and epoxy injection of cracks, or a combination thereof where applicable.

The entire garage deck including all horizontal surfaces, and all planters, penetrations and change of plane / wall abutments should be waterproofed after the repairs, for a continuous waterproofing system, using approved waterproofing system(s) and quality-controlled application. The waterproofing application should be inspected and approved by a Threshold Inspector & Waterproofing Manufacturer's Representative.

All previously repaired areas should be opened and inspected by a Threshold Inspector for conformance & approval where indicated by the Threshold Inspector. If any of the previously repaired areas are rejected for non-conformance by the Threshold Inspector, for any reason, regardless of budget impacts and regardless of cause, these areas should be demolished and repaired once more using approved systems and methods, with oversight by the Threshold Inspector / Engineer. No work shall be conducted prior to obtaining the proper permits and/or prior to erecting the proper shoring as specified and inspected by the Threshold Inspector / Engineer or their representative.

The entirety of the Garage Structure, including all structural & non-structural components thereof, should be inspected, sounded where required, and marked for repairs where required by the Threshold Inspector and/or their representative(s).

A water test should be performed to establish the existing drainage condition. The entirety of the Garage horizontal surface(s) should be sloped for positive drainage and to minimize standing water, towards the drain structures. The existing drainage and slope should be analyzed for proper drainage, and to determine if additional drains are required, and their location(s). New drains should be added where required. Indentions and ponding sites in the garage floor can be addressed by using Flash Patch material.

Any and all expansion joints should be replaced with new expansion joints, using approved system(s) and quality-controlled installation. Any sites of deteriorated concrete at the expansion joints will require repairs using approved systems and methods, with oversight by the Threshold Inspector / Engineer.

Any and all M.E.P. components in the garage should be addressed as required to meet applicable requirements of current FBC 2020 with amendments and of any municipality having jurisdiction.



A permit from the local Building Department is required for the structural repair work, and the repairs must be performed by a properly licensed & insured Contractor, that is qualified and experienced with structural concrete repairs to, and waterproofing of, threshold buildings.

Respectfully Submitted By
S&D Engineering and Construction, Inc.

Farrukh Sayeed, P.E., CGC, MBA, MIS
President
April 3, 2022

Plaza Del Prado Condominium Association Inc.
18051 Biscayne Boulevard
Aventura, FL-33160

West Parking Garage Repaired Concrete Inspection
Phase I & Phase II

PHOTO-LOG

Prepared By

S&D Engineering and Construction, Inc
1031 NW 31st Avenue,
Pompano Beach, FL 33069

April 02nd, 2022



Photo 1: Slab Repair Location where demolition was performed



Photo 2: Slab Repair Location where demolition was performed



Photo 3: Reinforcement was not cleaned, and corrosion was present



Photo 4: Slab Repair Location where demolition was performed



Photo 5: Minor corrosion was observed at the reinforcement



Photo 6: Epoxy was not present at the Crack in overhead slab



Photo 7: No concrete repairs were performed at the joint



Photo 8: Joist Reinforcement was severely corroded



Photo 9: Demolition being performed at the newly repaired column base location



Photo 10: Evidence of corrosion in the column reinforcement



Photo 11: Location of newly repaired beam where demolition was performed



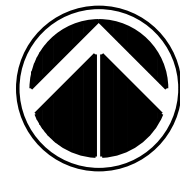
Photo 12: Evidence of corrosion in the reinforcement.



Photo 15: Sub-standard concrete repair. Evidence of minor corrosion in the reinforcement

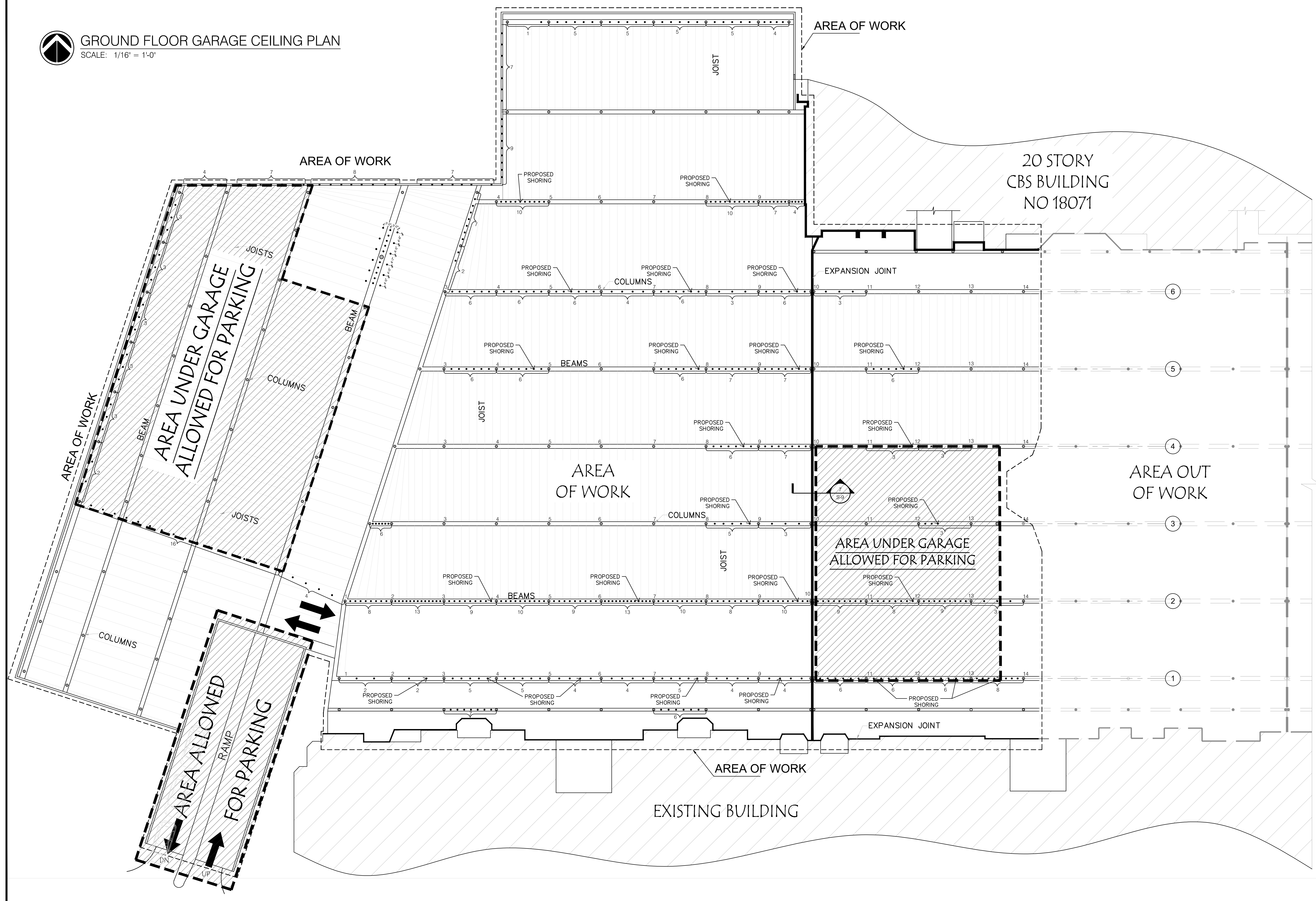


Photo 16: Evidence of minor corrosion in the reinforcement and poorly repaired concrete beam



GROUND FLOOR GARAGE CEILING PLAN

SCALE: 1/16" = 1'-0"



S&D Engineering and Construction, Inc
 Tel: (954) 775-0143
 Fax: (754) 561-5741
 1031 NW 31st Avenue
 Pompano Beach, Florida 33069
 QB# 52647 CO# 28396

GARAGE CONCRETE RESTORATION
 PLAZA DEL PRADO CONDOMINIUM ASSOCIATION
 18051 BISCAYNE BOULEVARD AVENTURA, FL-33160

Seal

FARRUKH SAYEED
 PE# 64701

Date: 09/25/2020
 Drawn: SHL
 Revised: FS
 REVISIONS:
 IN-HOUSE REVISION
 AFFECTED SHEET
 S-2 (02.13.24) J.J.

Job No.
 22092-E

Drawing No.
S-2

Name: <u>Marcos Valdes</u>	Report Number: <u>06</u>
Client Name: <u>Plaza del Prado</u>	Visit Date: <u>12/03/2024</u>
Project Name: <u>Garage Deck Storm Drainage</u>	Visit Time: <u>01:00 PM</u>
Project Number: <u>16-637-031</u>	Ref: <u>None</u>

Weather:	Site Conditions	Day
<input type="checkbox"/> Clear	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Monday
<input type="checkbox"/> Overcast	<input type="checkbox"/> Muddy	<input type="checkbox"/> Tuesday
<input type="checkbox"/> Rain	Temperature <u>72°F</u>	<input checked="" type="checkbox"/> Wednesday
<input type="checkbox"/> Snow	<input type="checkbox"/> Dusty	<input type="checkbox"/> Thursday
<input type="checkbox"/> Foggy	<input type="checkbox"/> _____	<input type="checkbox"/> Friday
<input checked="" type="checkbox"/> Cold		<input type="checkbox"/> _____
<input type="checkbox"/> Warm		
<input type="checkbox"/> Hot		
<input type="checkbox"/> _____		

People Contacted: Dave Karvosky (Owner Representative), Javier Perez (Estrella Plumbing – Contractor), Bettina Allende (Board Member).

I. PURPOSE OF THE VISIT:

1. Participate in the coordination meeting and progress analysis of the plumbing works between the representatives of the "Plaza del Prado" building, the plumbing contractor "Estrella Plumbing," and "The Falcon Group." Take measurements of the quantities corresponding to the progress of the work on downspouts D8 to D14 and ND1 to ND3. Conduct an analysis in accordance with the design and site conditions for the underground connections to the existing network.

II. OBSERVATIONS:

1. Falcon observed that the storm drainage piping system in the garage is still in the process of being installed by Estrella Plumbing.
2. Falcon observed that the design adjustments and execution of the plumbing work were favorably analyzed and coordinated during the meeting with Dave Karvosky (Owner Representative), Javier Pérez (Estrella Plumbing – Contractor), and Bettina Allende (Board Member).
3. Falcon observed, during the analysis of the inspection videos of the interior of the existing underground cast iron pipe, that it shows signs of medium to high corrosion and accumulation of solid materials that affect its proper functioning.
4. Falcon conducted measurements of the pipes in the completed sections of downspouts D8 to D14 and ND1 to ND3, and the connection to the existing system will proceed once the excavations are completed. **(See Table #1 and Table #2)**
5. Falcon coordinated in the field the routing of the underground connections from the downspouts to the existing main. **(See Photos and Annex A)**
6. Falcon observed that several of the downspouts are missing the cleanouts specified for each of them. **(See Photos)**

Refer to Photo for Reference.

III. REMARKS

As part of the field observations, Falcon collected the quantities of PVC pipes installed for the storm drainage system in the garage area, specifically pertaining to the downspouts D8 to D14 and ND1 to ND3.

Table #1: Pipe quantities of D8 to D14 and ND1 to ND3

		Quantity of PVC pipes	
		4"	6"
D8	Downspout #8	202	7
D9	Downspout #9	104	7
D10	Downspout #10	46	7
D11	Downspout #11	125	7
D12	Downspout #12	241	7
D13	Downspout #13		
D14	Downspout #14	102	7
ND3	New Downspout #3	438	7
ND2	New Downspout #2	172	7
ND1	New Downspout #1	365	7
Underground pipes			
TOTAL (FT)		1795	63

Table #2: Total quantities based on the current progress of the work

No. 1	Plumbing Installation	Unit of Measure	Estimated Quantity	Installed Pipe Progress
1.1	4" PVC Pipe Installation	LF	2200	2397
1.2	5" PVC Pipe Installation	LF	320	
1.3	6" PVC Pipe Installation	LF	60	87
1.4	Planters Irrigation Lines	LS.		
1.5	Planters Scuppers Drain Installation	Ea.	20	
1.6	4" PVC Underground Pipe Installation (NOT IN INITIAL SCOPE OF WORK)	LF		66
1.7	5" PVC Underground Pipe Installation	LF	300	
1.8	6" PVC Underground Pipe Installation	LF	300	256
1.9	8" PVC Underground Pipe Installation (NOT IN INITIAL SCOPE OF WORK)	LF		28
1.10	10" PVC Underground Pipe Installation (NOT IN INITIAL SCOPE OF WORK)	LF		9

Note: Discrepancies may exist between the quantities of pipes measured on-site after installation and those estimated during the design phase. These variations may result from deviations from the original design, site conditions, changes in elevations resulting from slopes, and material waste caused by cuts made to accommodate the drainage sections.

IV. RECOMMENDATIONS:

As part of this observation report, Falcon would like to make the following recommendations:

1. Falcon recommends replacing the existing underground cast iron pipes with Sch 40 PVC pipes, while maintaining the same diameters, locations, and slopes.
2. Falcon recommends installing the missing cleanouts before proceeding with the underground plumbing work and connecting the downspouts.
3. The contractor is responsible for keeping the job site clean and free of construction debris.
4. The contractor is advised to follow industry standards and OSHA guidelines during the installation and testing of the drainage system.

V. CLOSURE

Please note that this report is based on a limited visual inspection of the property. Falcon did not participate in the installation of the pipes, the sealing between them, the verification of slopes, or the water testing and pipe filling. The information and opinions provided herein are based on the best available knowledge and reflect the data accessible at the time of the report. Nothing in this report should be interpreted as a guarantee of any kind. Falcon reserves the right to amend or supplement this report should new information become available.

Annex:

The following pages include site photographs and drawings that were utilized as references during the observation process.

Attachments
N/A

Submitted by: Marcos Valdes, Project Associate

Date: 12/03/2024

Copies: Client

A/E

Contractor

Consultants

File

Photos

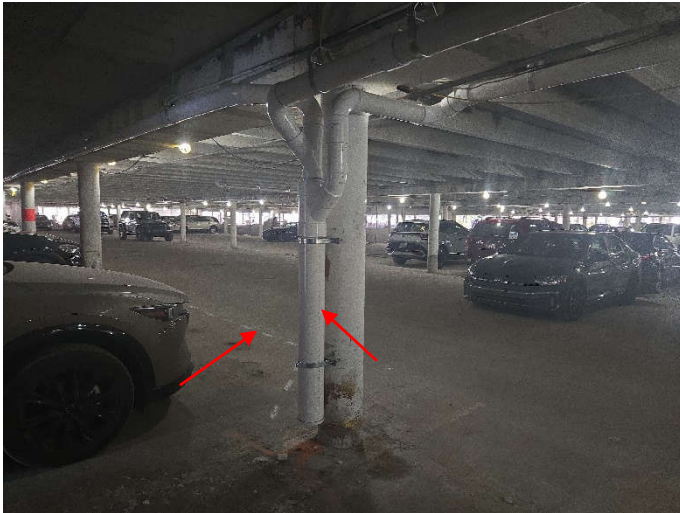


Photo # 1. Plaza del Prado, Garage Deck Storm Drainage, Downspout ND1. Proposed underground layout. **The missing clean-out must be installed.**



Photo # 2. Plaza del Prado, Garage Deck Storm Drainage, Downspout ND2. Proposed underground layout. **The missing clean-out must be installed.**

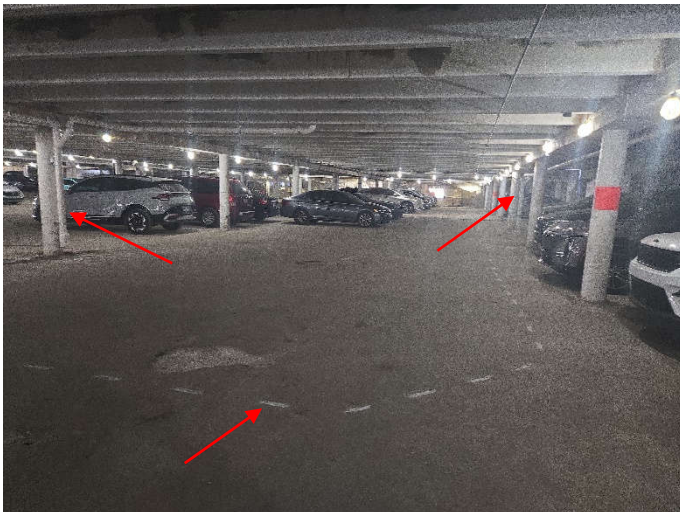


Photo # 3. Plaza del Prado, Garage Deck Storm Drainage, Downspout ND1 and ND2. Proposed underground layout.

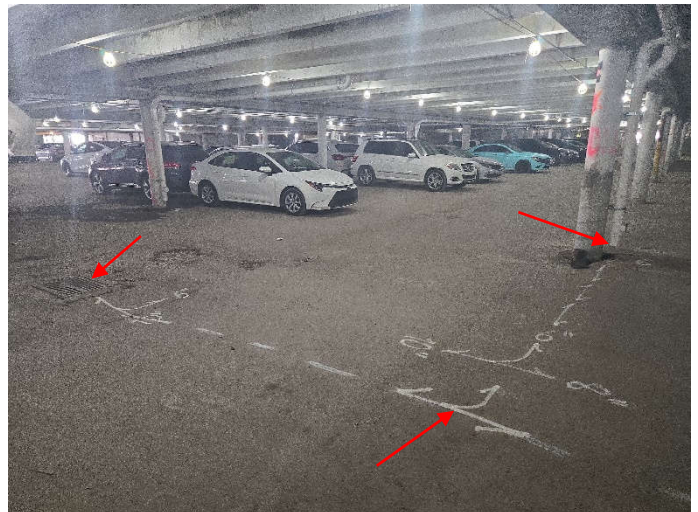


Photo # 4. Plaza del Prado, Garage Deck Storm Drainage, Downspout D11 and existing Catch Basin. Proposed underground layout.

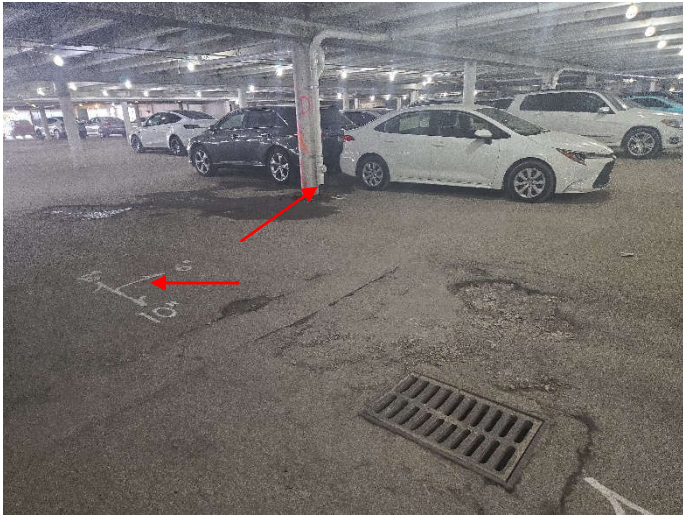


Photo # 5. Plaza del Prado, Garage Deck Storm Drainage, Downspout D10 and existing Catch Basin. Proposed underground layout

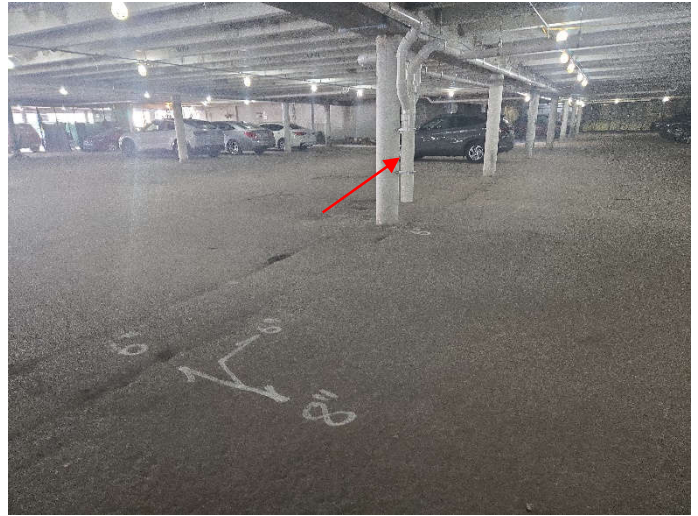


Photo # 6. Plaza del Prado, Garage Deck Storm Drainage, Downspout ND3. Proposed underground layout. ***The missing clean-out must be installed.***

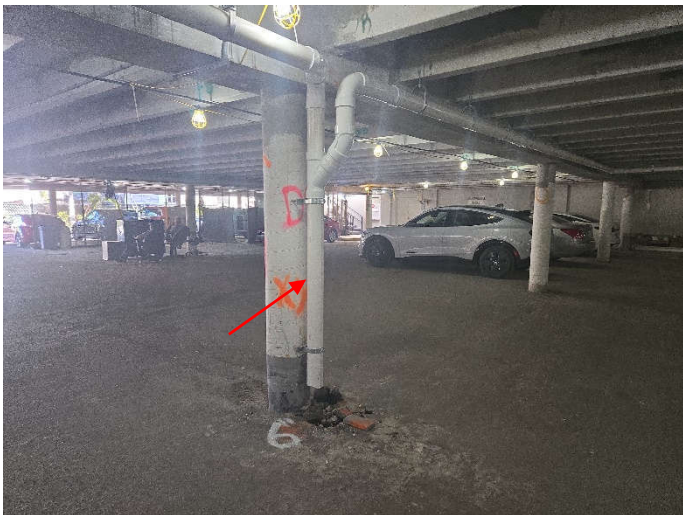
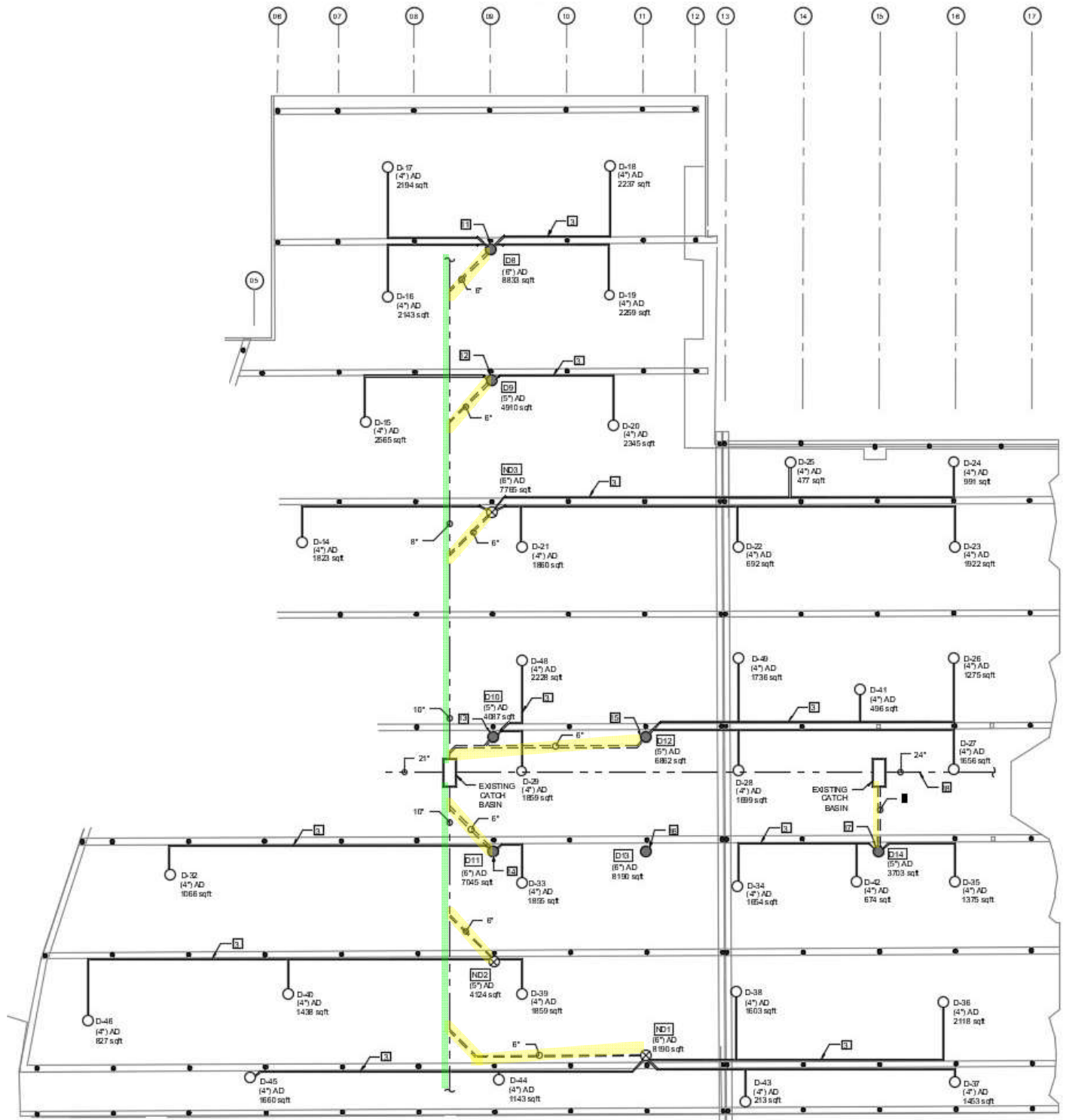


Photo # 7. Plaza del Prado, Garage Deck Storm Drainage, Downspout D9. The diameter must be increased to 6" and the clean-out must be installed.



Photo # 8. Plaza del Prado, Garage Deck Storm Drainage, Downspout D8. ***The missing clean-out must be installed.***

APPENDIX A: Proposed underground layout sketch



APPENDIX B

GARAGE DECK STORM DRAINAGE



Client: 16-637
 Project Name: Garage Deck
 Date: 12/3/2024
 Status: In Progress
 Location: Garage Deck Storm Drainage

Completed: 68.57%
 Project Completion Days: N/A
 Active Worked Days: N/A
 Report # 6

Task	% Of Completion	Status	Observations Notes
Storm Drainage Piping System	80%	In Progress	
Piping Support Horizontal	80%	In Progress	
Piping Support Downspout	80%	In Progress	
Trench	70%	In Progress	
Test and Commissioning	50%	In Progress	
Inspection	70%	In Progress	
Final Project Clean up	50%	In Progress	

End of report.