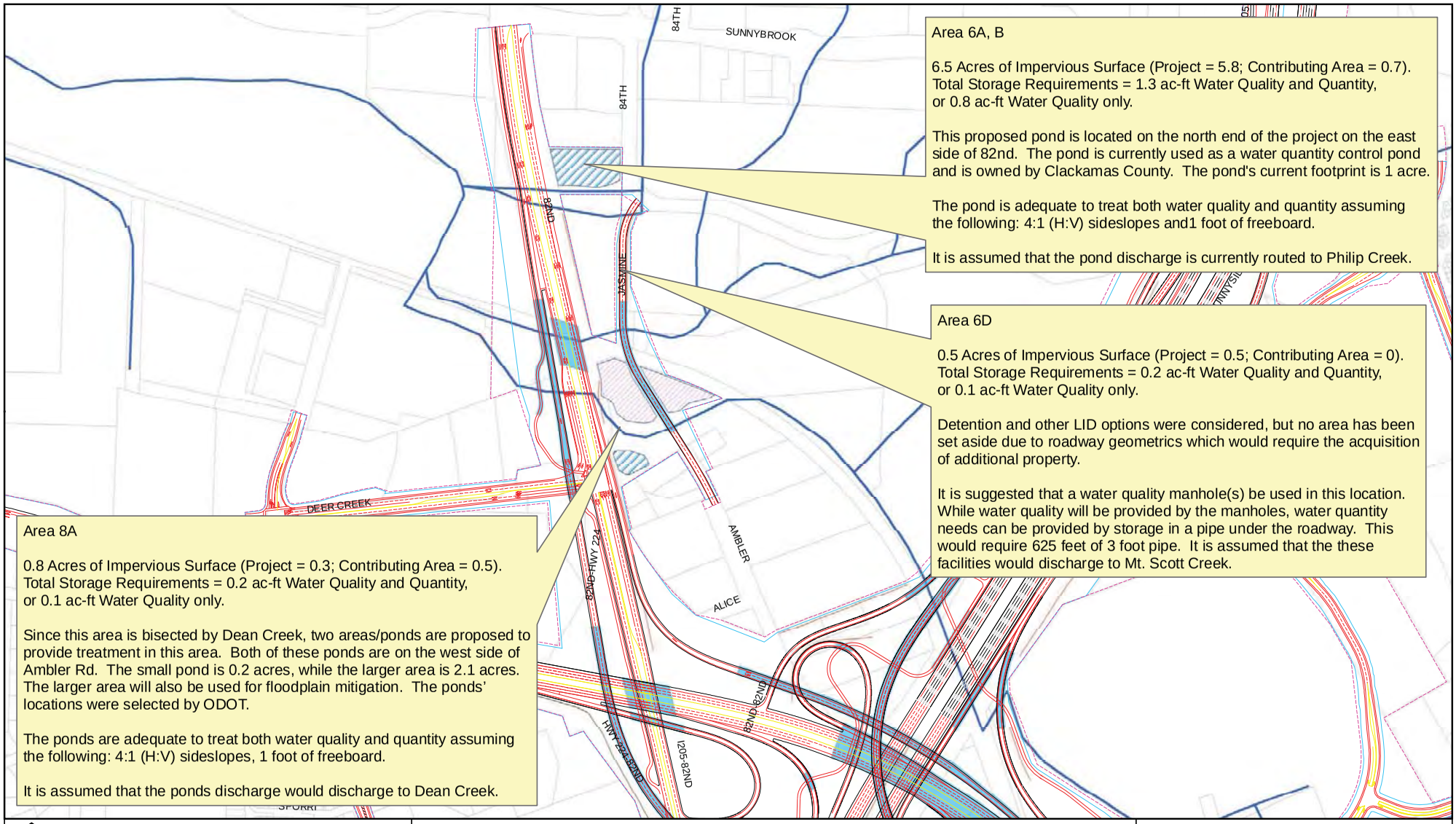

Area 6A, B

6.5 Acres of Impervious Surface (Project = 5.8; Contributing Area = 0.7).
Total Storage Requirements = 1.3 ac-ft Water Quality and Quantity,
or 0.8 ac-ft Water Quality only.

This proposed pond is located on the north end of the project on the east side of 82nd. The pond is currently used as a water quantity control pond and is owned by Clackamas County. The pond's current footprint is 1 acre.

The pond is adequate to treat both water quality and quantity assuming the following: 4:1 (H:V) sideslopes and1 foot of freeboard.

It is assumed that the pond discharge is currently routed to Philip Creek.

Area 6D

0.5 Acres of Impervious Surface (Project = 0.5; Contributing Area = 0).
Total Storage Requirements = 0.2 ac-ft Water Quality and Quantity,
or 0.1 ac-ft Water Quality only.

Detention and other LID options were considered, but no area has been set aside due to roadway geometrics which would require the acquisition of additional property.

It is suggested that a water quality manhole(s) be used in this location. While water quality will be provided by the manholes, water quantity needs can be provided by storage in a pipe under the roadway. This would require 625 feet of 3 foot pipe. It is assumed that the these facilities would discharge to Mt. Scott Creek.

Area 8A

0.8 Acres of Impervious Surface (Project = 0.3; Contributing Area = 0.5).
Total Storage Requirements = 0.2 ac-ft Water Quality and Quantity,
or 0.1 ac-ft Water Quality only.

Since this area is bisected by Dean Creek, two areas/ponds are proposed to provide treatment in this area. Both of these ponds are on the west side of Ambler Rd. The small pond is 0.2 acres, while the larger area is 2.1 acres. The larger area will also be used for floodplain mitigation. The ponds' locations were selected by ODOT.

The ponds are adequate to treat both water quality and quantity assuming the following: 4:1 (H:V) sideslopes, 1 foot of freeboard.

It is assumed that the ponds discharge would discharge to Dean Creek.

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Flood Plain Mitigation Site

Storm Water Treatment/Detention

Figure PA-36

82nd Avenue and I-205 Areas 6A, B, D, and 8A

Sunrise Project, I-205 to Rock Creek Junction

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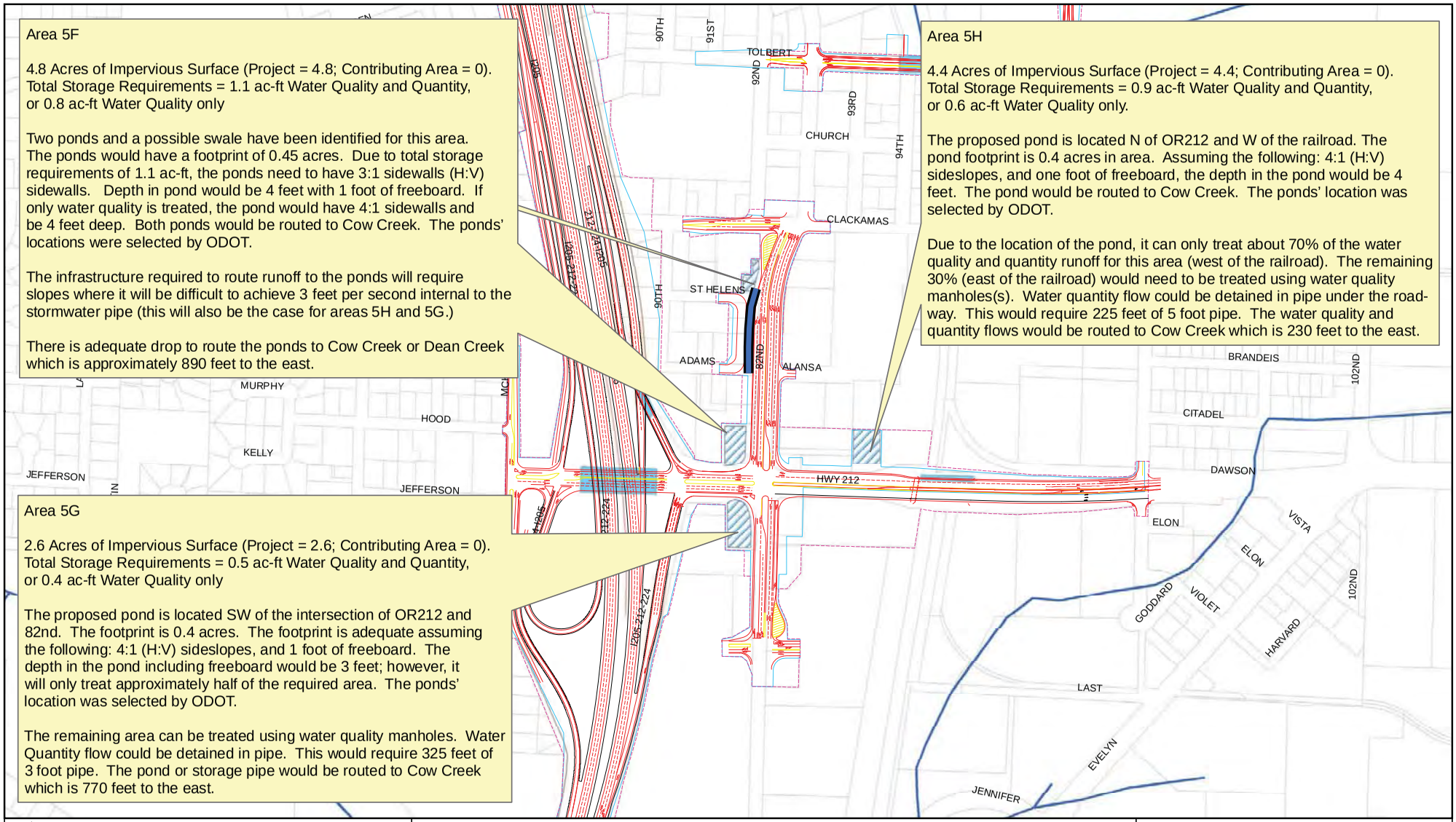

Area 5F

4.8 Acres of Impervious Surface (Project = 4.8; Contributing Area = 0). Total Storage Requirements = 1.1 ac-ft Water Quality and Quantity, or 0.8 ac-ft Water Quality only

Two ponds and a possible swale have been identified for this area. The ponds would have a footprint of 0.45 acres. Due to total storage requirements of 1.1 ac-ft, the ponds need to have 3:1 sidewalls (H:V) sidewalls. Depth in pond would be 4 feet with 1 foot of freeboard. If only water quality is treated, the pond would have 4:1 sidewalls and be 4 feet deep. Both ponds would be routed to Cow Creek. The ponds' locations were selected by ODOT.

The infrastructure required to route runoff to the ponds will require slopes where it will be difficult to achieve 3 feet per second internal to the stormwater pipe (this will also be the case for areas 5H and 5G.)

There is adequate drop to route the ponds to Cow Creek or Dean Creek which is approximately 890 feet to the east.

Area 5H

4.4 Acres of Impervious Surface (Project = 4.4; Contributing Area = 0). Total Storage Requirements = 0.9 ac-ft Water Quality and Quantity, or 0.6 ac-ft Water Quality only.

The proposed pond is located N of OR212 and W of the railroad. The pond footprint is 0.4 acres in area. Assuming the following: 4:1 (H:V) sideslopes, and one foot of freeboard, the depth in the pond would be 4 feet. The pond would be routed to Cow Creek. The ponds' location was selected by ODOT.

Due to the location of the pond, it can only treat about 70% of the water quality and quantity runoff for this area (west of the railroad). The remaining 30% (east of the railroad) would need to be treated using water quality manholes(s). Water quantity flow could be detained in pipe under the roadway. This would require 225 feet of 5 foot pipe. The water quality and quantity flows would be routed to Cow Creek which is 230 feet to the east.

Area 5G

2.6 Acres of Impervious Surface (Project = 2.6; Contributing Area = 0). Total Storage Requirements = 0.5 ac-ft Water Quality and Quantity, or 0.4 ac-ft Water Quality only

The proposed pond is located SW of the intersection of OR212 and 82nd. The footprint is 0.4 acres. The footprint is adequate assuming the following: 4:1 (H:V) sideslopes, and 1 foot of freeboard. The depth in the pond including freeboard would be 3 feet; however, it will only treat approximately half of the required area. The ponds' location was selected by ODOT.

The remaining area can be treated using water quality manholes. Water Quantity flow could be detained in pipe. This would require 325 feet of 3 foot pipe. The pond or storage pipe would be routed to Cow Creek which is 770 feet to the east.

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Swale

Storm Water Treatment/Detention

Figure PA-37

SE 82nd Drive Areas 5F, G, H

Sunrise Project, I-205 to Rock Creek Junction

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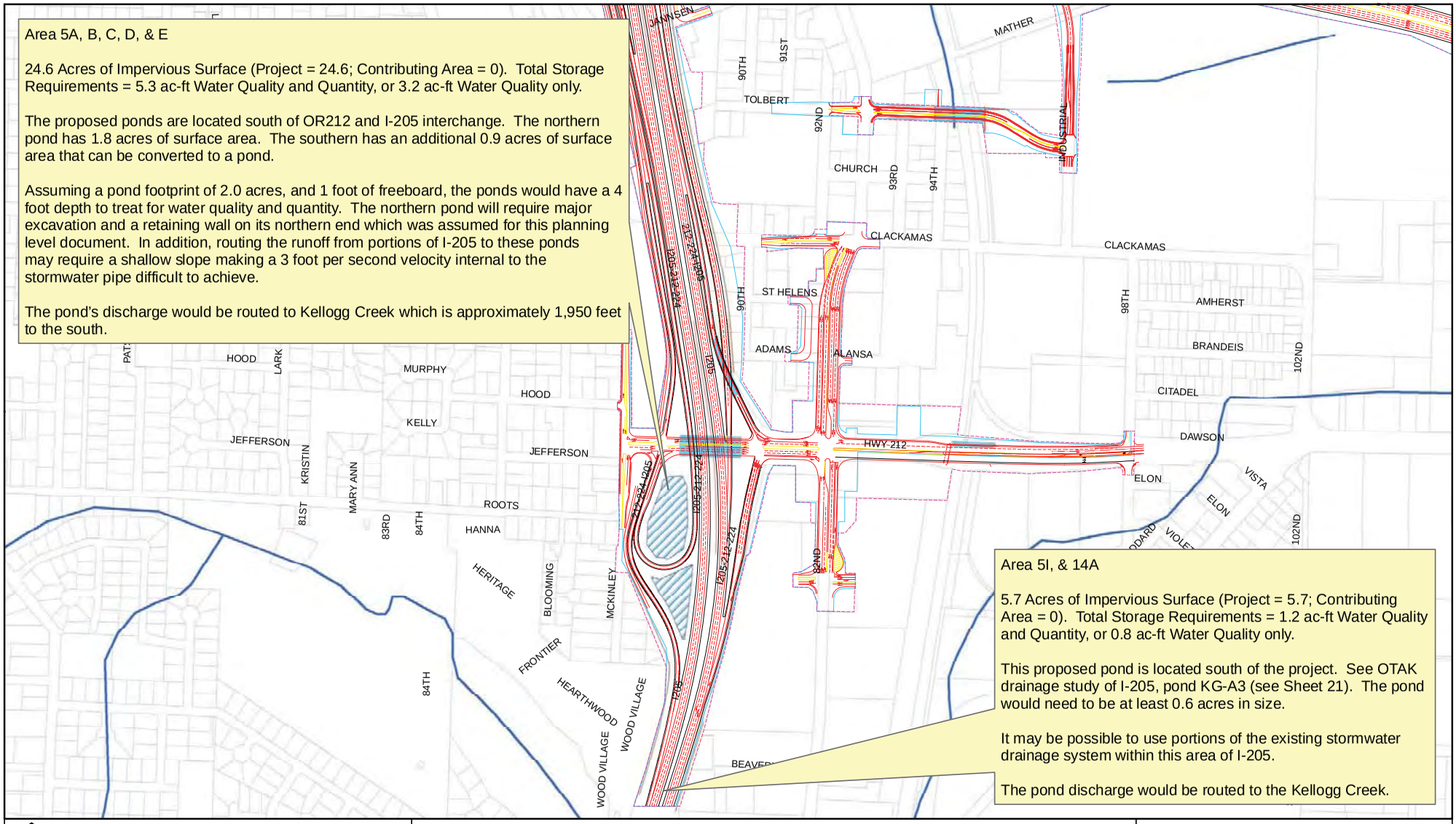

Area 5A, B, C, D, & E

24.6 Acres of Impervious Surface (Project = 24.6; Contributing Area = 0). Total Storage Requirements = 5.3 ac-ft Water Quality and Quantity, or 3.2 ac-ft Water Quality only.

The proposed ponds are located south of OR212 and I-205 interchange. The northern pond has 1.8 acres of surface area. The southern has an additional 0.9 acres of surface area that can be converted to a pond.

Assuming a pond footprint of 2.0 acres, and 1 foot of freeboard, the ponds would have a 4 foot depth to treat for water quality and quantity. The northern pond will require major excavation and a retaining wall on its northern end which was assumed for this planning level document. In addition, routing the runoff from portions of I-205 to these ponds may require a shallow slope making a 3 foot per second velocity internal to the stormwater pipe difficult to achieve.

The pond's discharge would be routed to Kellogg Creek which is approximately 1,950 feet to the south.

Area 5I, & 14A

5.7 Acres of Impervious Surface (Project = 5.7; Contributing Area = 0). Total Storage Requirements = 1.2 ac-ft Water Quality and Quantity, or 0.8 ac-ft Water Quality only.

This proposed pond is located south of the project. See OTAK drainage study of I-205, pond KG-A3 (see Sheet 21). The pond would need to be at least 0.6 acres in size.

It may be possible to use portions of the existing stormwater drainage system within this area of I-205.

The pond discharge would be routed to the Kellogg Creek.

N

500 0 500 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-38

South I-205 Areas 5A-E, 5I, 14A

Sunrise Project, I-205 to Rock Creek Junction

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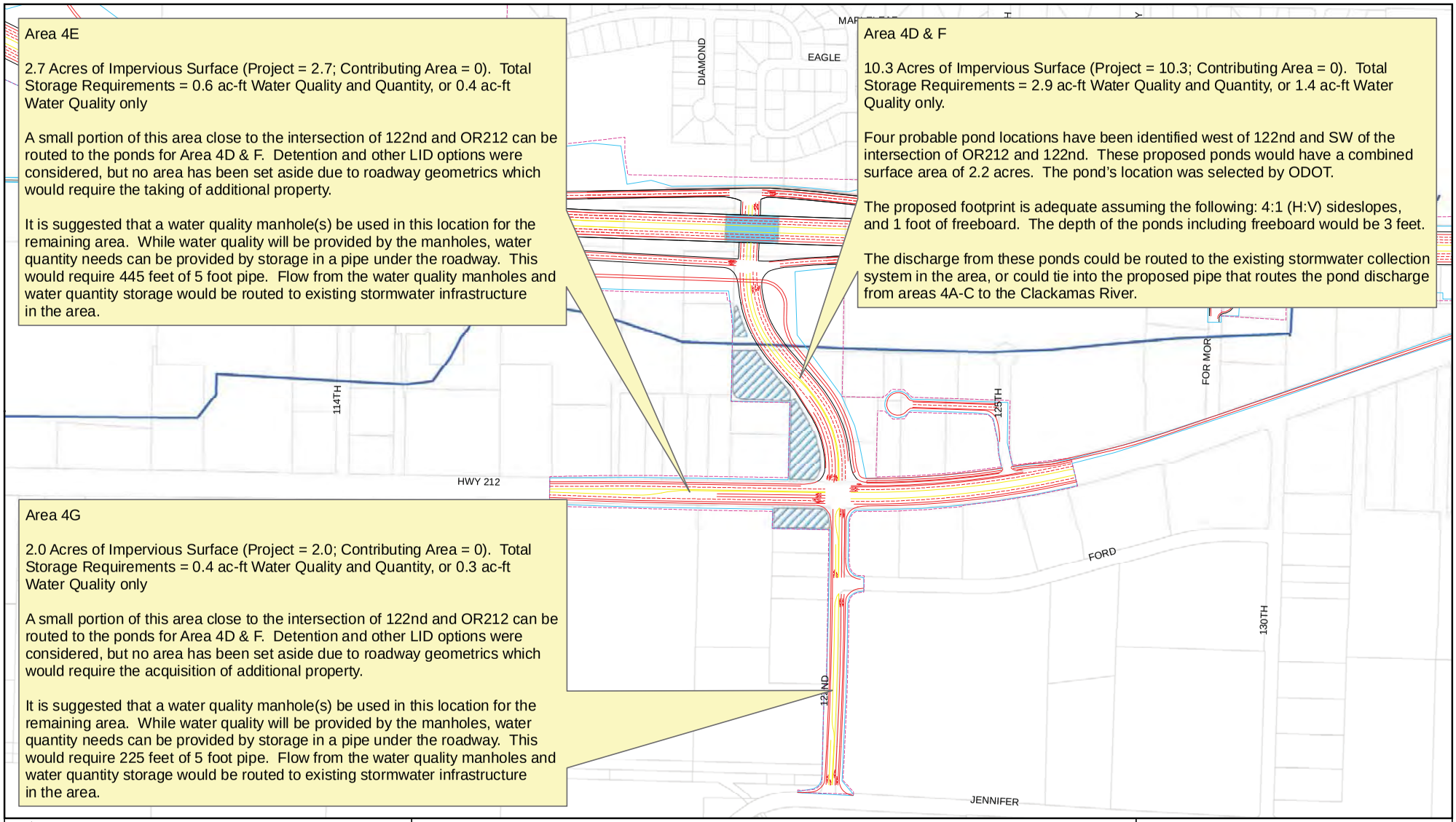

Area 4E

2.7 Acres of Impervious Surface (Project = 2.7; Contributing Area = 0). Total Storage Requirements = 0.6 ac-ft Water Quality and Quantity, or 0.4 ac-ft Water Quality only

A small portion of this area close to the intersection of 122nd and OR212 can be routed to the ponds for Area 4D & F. Detention and other LID options were considered, but no area has been set aside due to roadway geometrics which would require the taking of additional property.

It is suggested that a water quality manhole(s) be used in this location for the remaining area. While water quality will be provided by the manholes, water quantity needs can be provided by storage in a pipe under the roadway. This would require 445 feet of 5 foot pipe. Flow from the water quality manholes and water quantity storage would be routed to existing stormwater infrastructure in the area.

Area 4D & F

10.3 Acres of Impervious Surface (Project = 10.3; Contributing Area = 0). Total Storage Requirements = 2.9 ac-ft Water Quality and Quantity, or 1.4 ac-ft Water Quality only.

Four probable pond locations have been identified west of 122nd and SW of the intersection of OR212 and 122nd. These proposed ponds would have a combined surface area of 2.2 acres. The pond's location was selected by ODOT.

The proposed footprint is adequate assuming the following: 4:1 (H:V) sideslopes, and 1 foot of freeboard. The depth of the ponds including freeboard would be 3 feet.

The discharge from these ponds could be routed to the existing stormwater collection system in the area, or could tie into the proposed pipe that routes the pond discharge from areas 4A-C to the Clackamas River.

Area 4G

2.0 Acres of Impervious Surface (Project = 2.0; Contributing Area = 0). Total Storage Requirements = 0.4 ac-ft Water Quality and Quantity, or 0.3 ac-ft Water Quality only

A small portion of this area close to the intersection of 122nd and OR212 can be routed to the ponds for Area 4D & F. Detention and other LID options were considered, but no area has been set aside due to roadway geometrics which would require the acquisition of additional property.

It is suggested that a water quality manhole(s) be used in this location for the remaining area. While water quality will be provided by the manholes, water quantity needs can be provided by storage in a pipe under the roadway. This would require 225 feet of 5 foot pipe. Flow from the water quality manholes and water quantity storage would be routed to existing stormwater infrastructure in the area.

N

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-39

SE 122nd Avenue Areas 4D-G

Sunrise Project, I-205 to Rock Creek Junction

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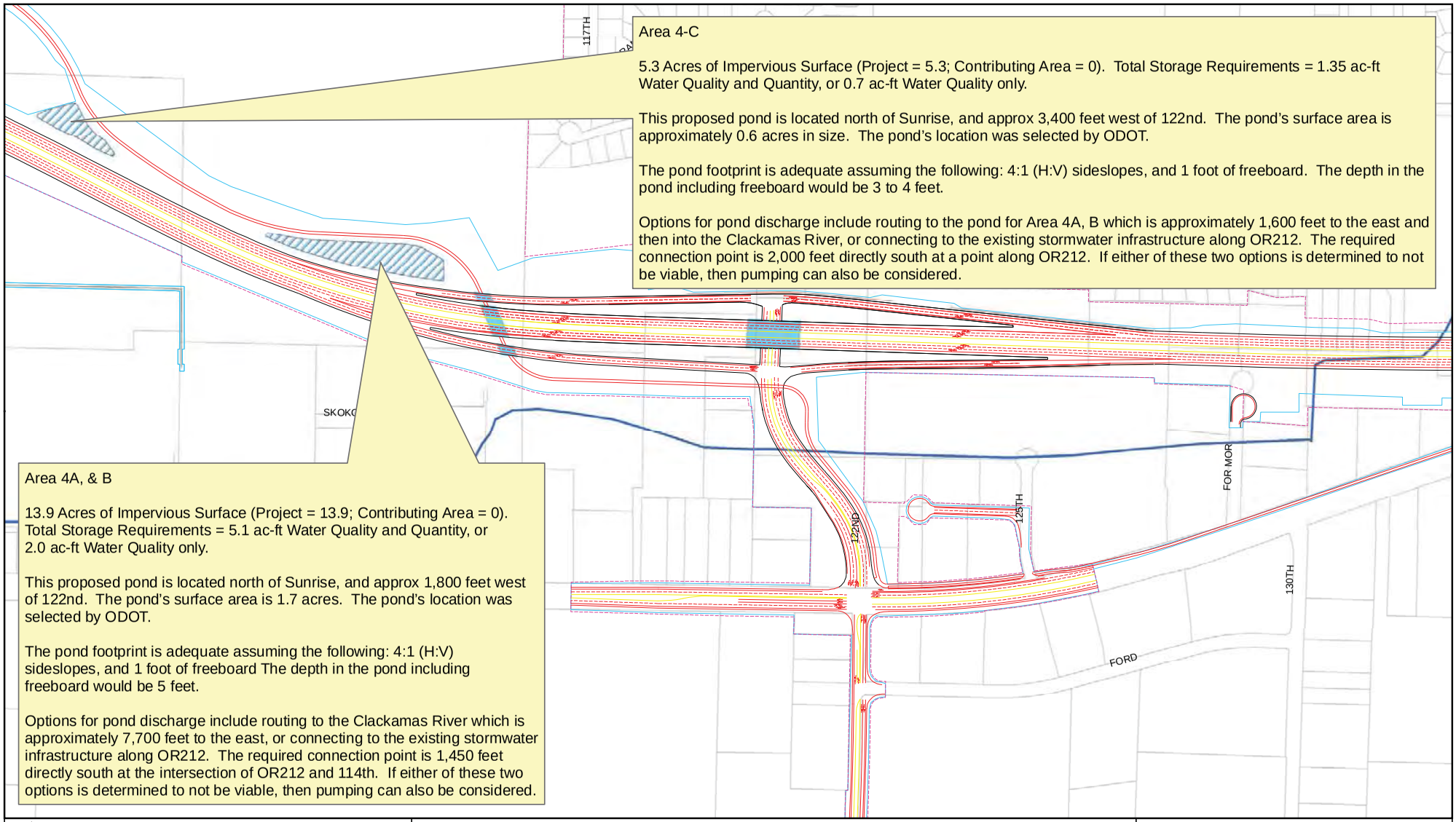

Area 4-C

5.3 Acres of Impervious Surface (Project = 5.3; Contributing Area = 0). Total Storage Requirements = 1.35 ac-ft Water Quality and Quantity, or 0.7 ac-ft Water Quality only.

This proposed pond is located north of Sunrise, and approx 3,400 feet west of 122nd. The pond's surface area is approximately 0.6 acres in size. The pond's location was selected by ODOT.

The pond footprint is adequate assuming the following: 4:1 (H:V) sideslopes, and 1 foot of freeboard. The depth in the pond including freeboard would be 3 to 4 feet.

Options for pond discharge include routing to the pond for Area 4A, B which is approximately 1,600 feet to the east and then into the Clackamas River, or connecting to the existing stormwater infrastructure along OR212. The required connection point is 2,000 feet directly south at a point along OR212. If either of these two options is determined to not be viable, then pumping can also be considered.

Area 4A, & B

13.9 Acres of Impervious Surface (Project = 13.9; Contributing Area = 0). Total Storage Requirements = 5.1 ac-ft Water Quality and Quantity, or 2.0 ac-ft Water Quality only.

This proposed pond is located north of Sunrise, and approx 1,800 feet west of 122nd. The pond's surface area is 1.7 acres. The pond's location was selected by ODOT.

The pond footprint is adequate assuming the following: 4:1 (H:V) sideslopes, and 1 foot of freeboard The depth in the pond including freeboard would be 5 feet.

Options for pond discharge include routing to the Clackamas River which is approximately 7,700 feet to the east, or connecting to the existing stormwater infrastructure along OR212. The required connection point is 1,450 feet directly south at the intersection of OR212 and 114th. If either of these two options is determined to not be viable, then pumping can also be considered.

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-40

West of 122nd Areas 4A-C

Sunrise Project, I-205 to Rock Creek Junction

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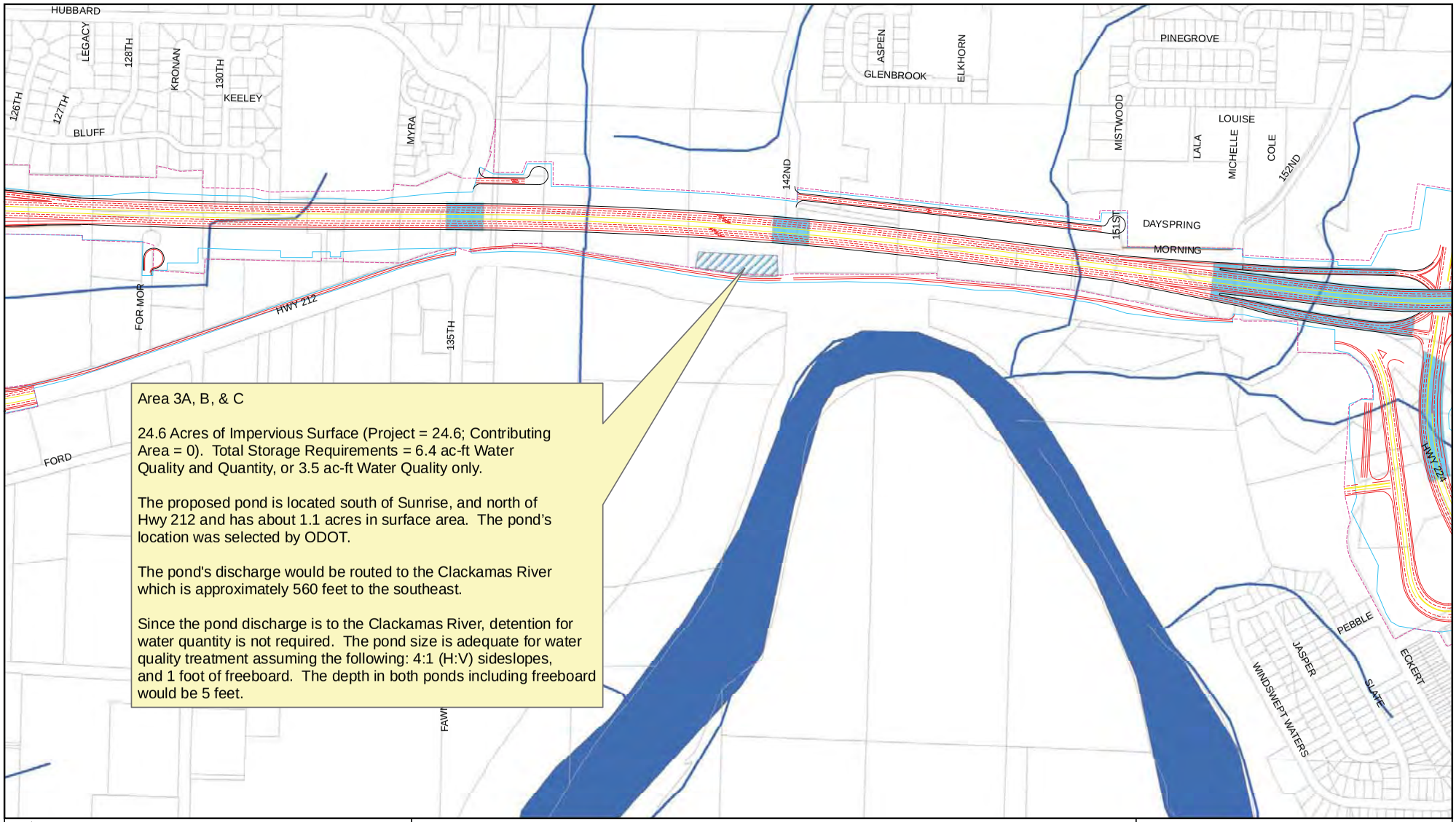

Area 3A, B, & C

24.6 Acres of Impervious Surface (Project = 24.6; Contributing Area = 0). Total Storage Requirements = 6.4 ac-ft Water Quality and Quantity, or 3.5 ac-ft Water Quality only.

The proposed pond is located south of Sunrise, and north of Hwy 212 and has about 1.1 acres in surface area. The pond's location was selected by ODOT.

The pond's discharge would be routed to the Clackamas River which is approximately 560 feet to the southeast.

Since the pond discharge is to the Clackamas River, detention for water quantity is not required. The pond size is adequate for water quality treatment assuming the following: 4:1 (H:V) sideslopes, and 1 foot of freeboard. The depth in both ponds including freeboard would be 5 feet.

500 0 500 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-41

SE 142nd Avenue Areas 3A-C

Sunrise Project, I-205 to Rock Creek Junction

File: P:\O\ODOT000006481\0600INFO\EC\GIS\Sunrise_A3-ABC.mxd
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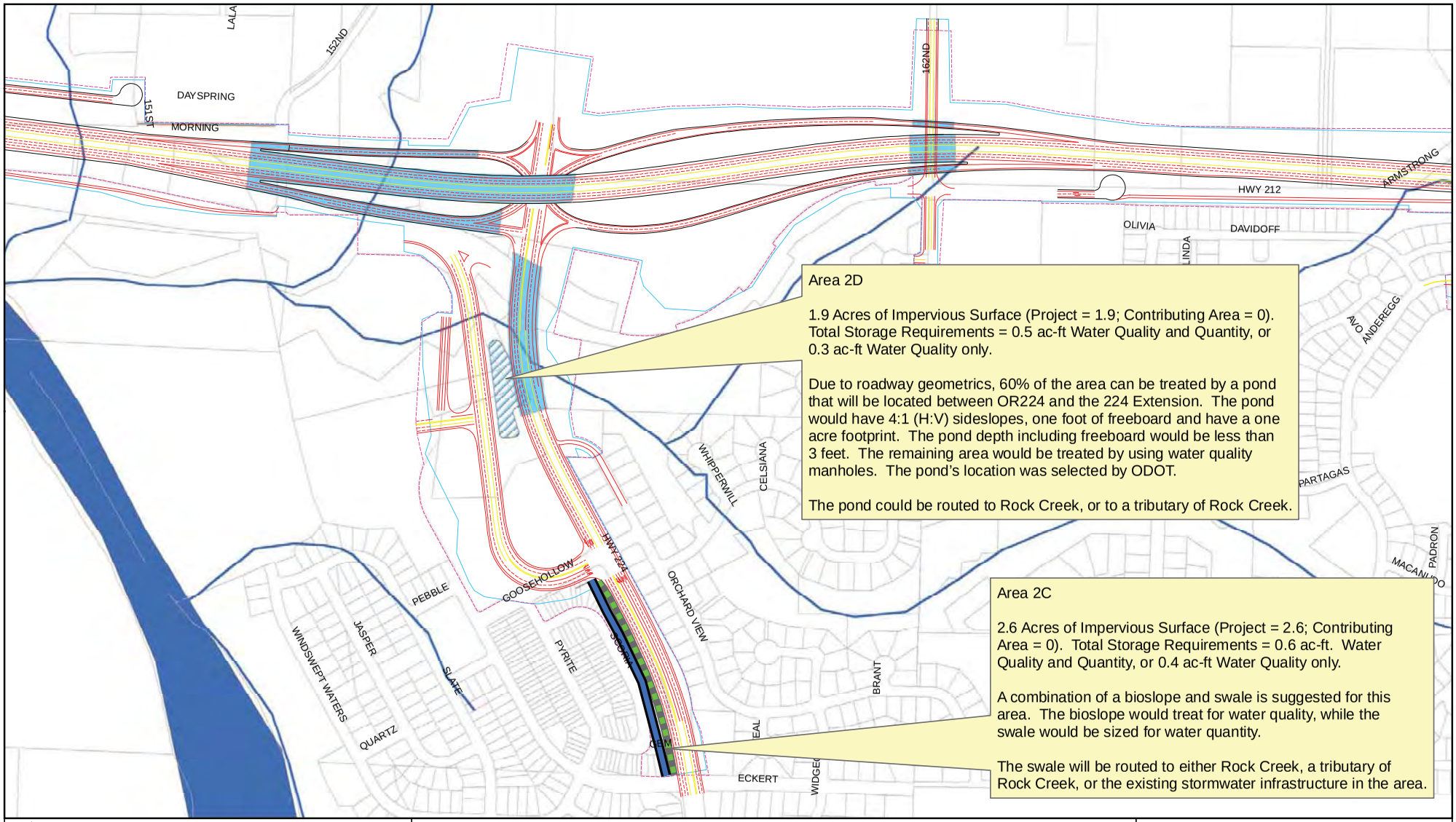

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

- Storm Water Treatment/Detention
- Storm Water Bioslope
- Storm Water Swale

Figure PA-42

Rock Creek Juntion Area 2C-D

Sunrise Project, I-205 to Rock Creek Junction

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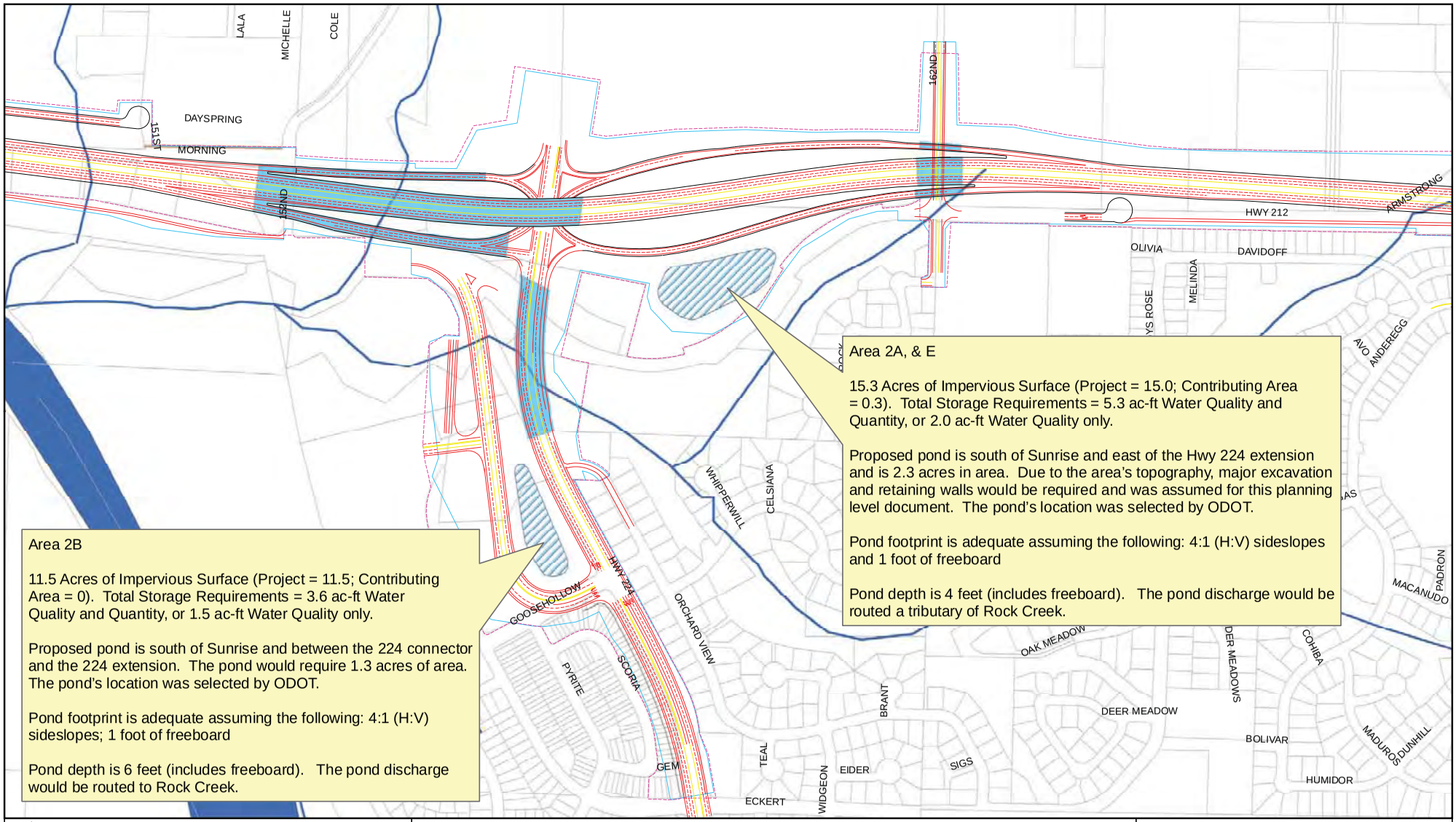

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-43

Rock Creek Junction Area 2A, B, & E

Sunrise Project, I-205 to Rock Creek Junction

File: P:\O\ODOT000006481\0600INFO\EC\GIS\Sunrise_AB-ABE.mxd
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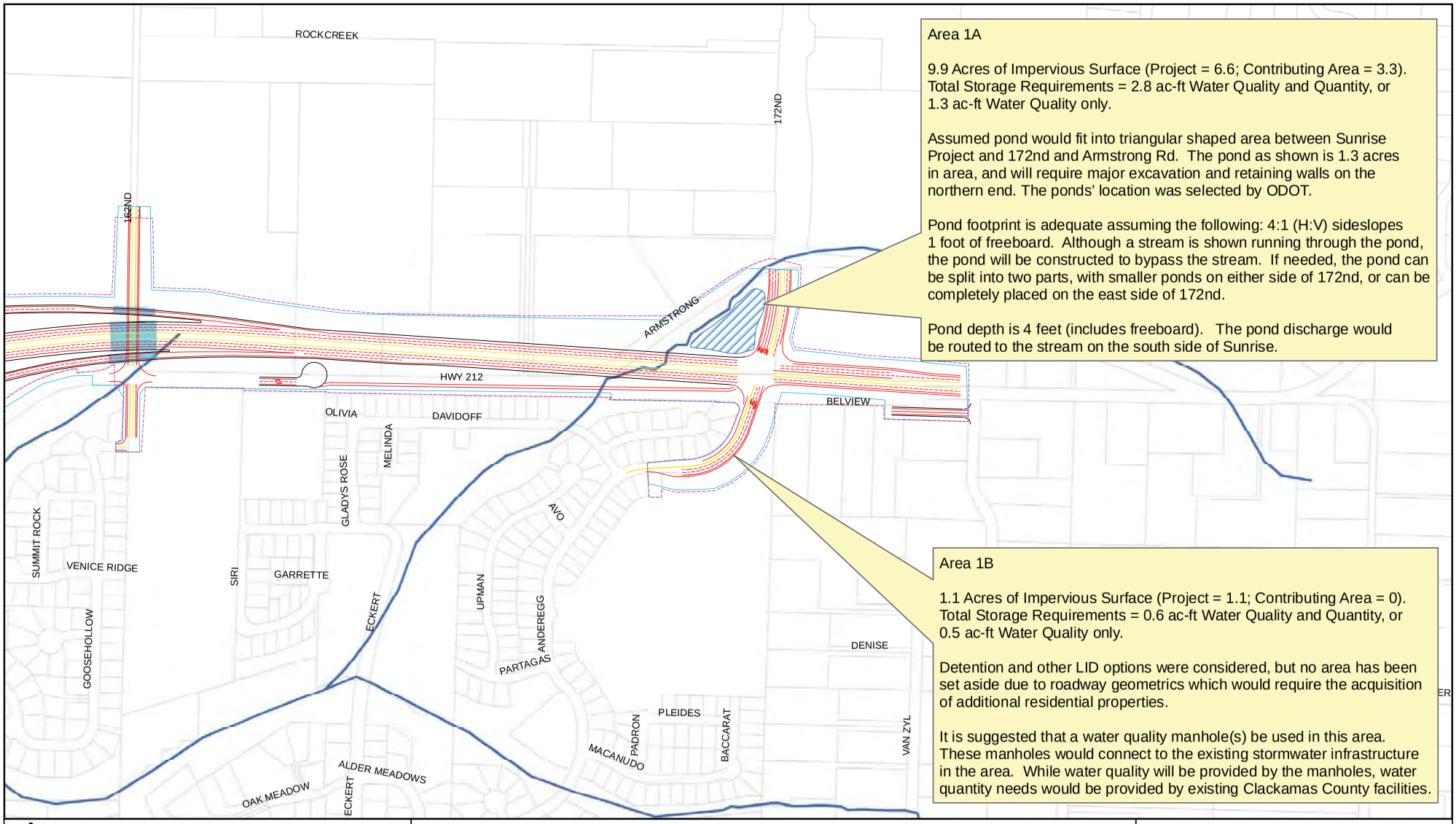

Area 1A

9.9 Acres of Impervious Surface (Project = 6.6; Contributing Area = 3.3). Total Storage Requirements = 2.8 ac-ft Water Quality and Quantity, or 1.3 ac-ft Water Quality only.

Assumed pond would fit into triangular shaped area between Sunrise Project and 172nd and Armstrong Rd. The pond as shown is 1.3 acres in area, and will require major excavation and retaining walls on the northern end. The ponds' location was selected by ODOT.

Pond footprint is adequate assuming the following: 4:1 (H:V) sideslopes 1 foot of freeboard. Although a stream is shown running through the pond, the pond will be constructed to bypass the stream. If needed, the pond can be split into two parts, with smaller ponds on either side of 172nd, or can be completely placed on the east side of 172nd.

Pond depth is 4 feet (includes freeboard). The pond discharge would be routed to the stream on the south side of Sunrise.

Area 1B

1.1 Acres of Impervious Surface (Project = 1.1; Contributing Area = 0). Total Storage Requirements = 0.6 ac-ft Water Quality and Quantity, or 0.5 ac-ft Water Quality only.

Detention and other LID options were considered, but no area has been set aside due to roadway geometrics which would require the acquisition of additional residential properties.

It is suggested that a water quality manhole(s) be used in this area. These manholes would connect to the existing stormwater infrastructure in the area. While water quality will be provided by the manholes, water quantity needs would be provided by existing Clackamas County facilities.

400 0 400 Feet

Sources:
ODOT and Metro, Portland OR (2008-09)

Legend

Storm Water Treatment/Detention

Figure PA-44

SE 172nd Road Areas 1A-B

Sunrise Project, I-205 to Rock Creek Junction

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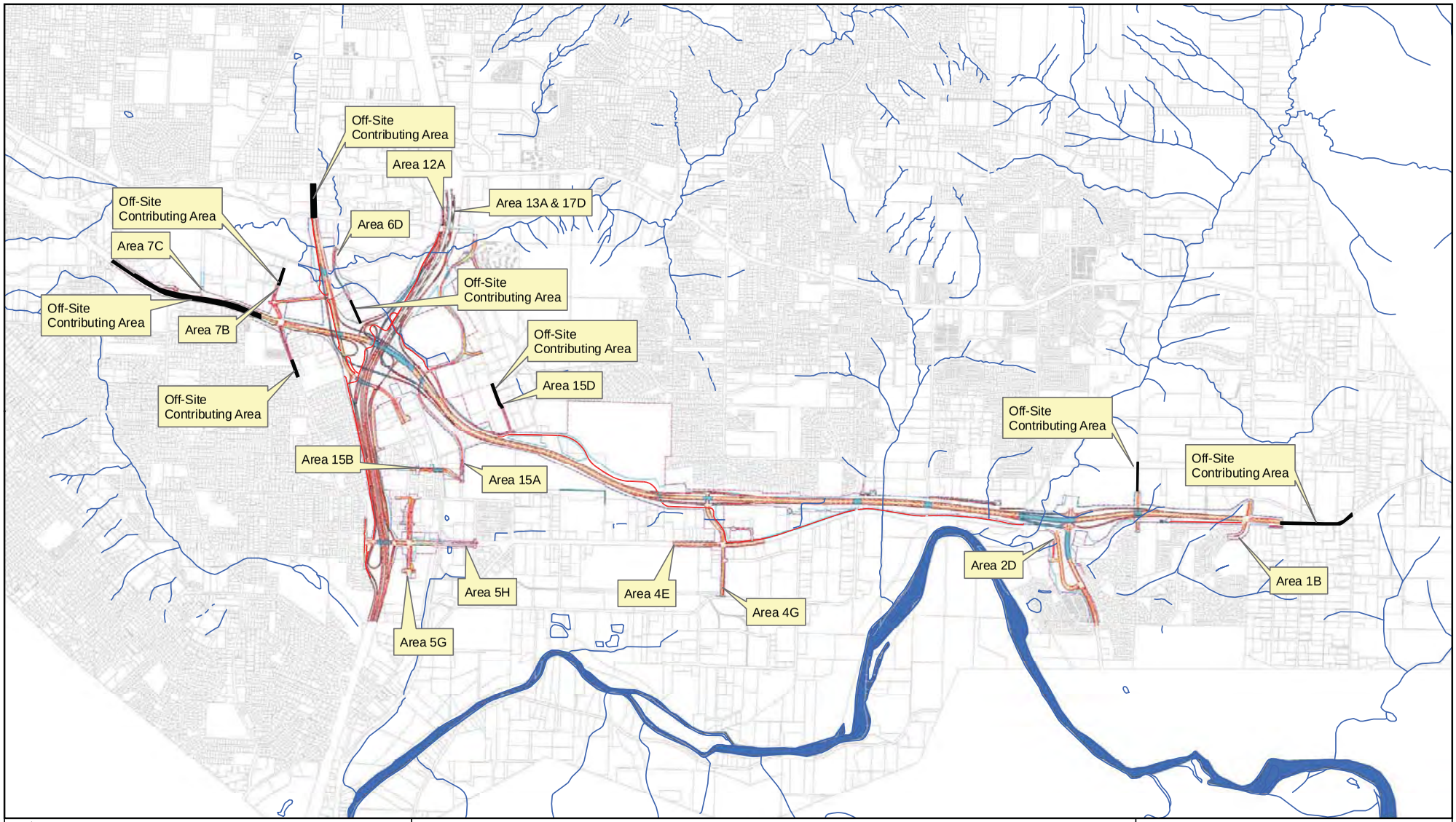

NTS

Sources:
ODOT and Metro, Portland OR (2008-09)

Note: Contributing Area refers to offsite impervious surfaces that contribute stormwater runoff to the project site.

Figure PA-45

Untreated and Off-Site Contributing Area Graphic

Sunrise Project, I-205 to Rock Creek Junction

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200 0 200 Feet

Sources:
ODOT and Metro, Portland OR

Legend

- Bioslopes
- Stormwater Facility Site

Figure PA-45A

Additional Water Quality Treatment Area #1

Sunrise Project, I-205 to Rock Creek Junction

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Sources:
ODOT and Metro, Portland OR

Legend

Bioslopes

Figure PA-45B

Additional Water Quality Treatment Area #2

Sunrise Project, I-205 to Rock Creek Junction

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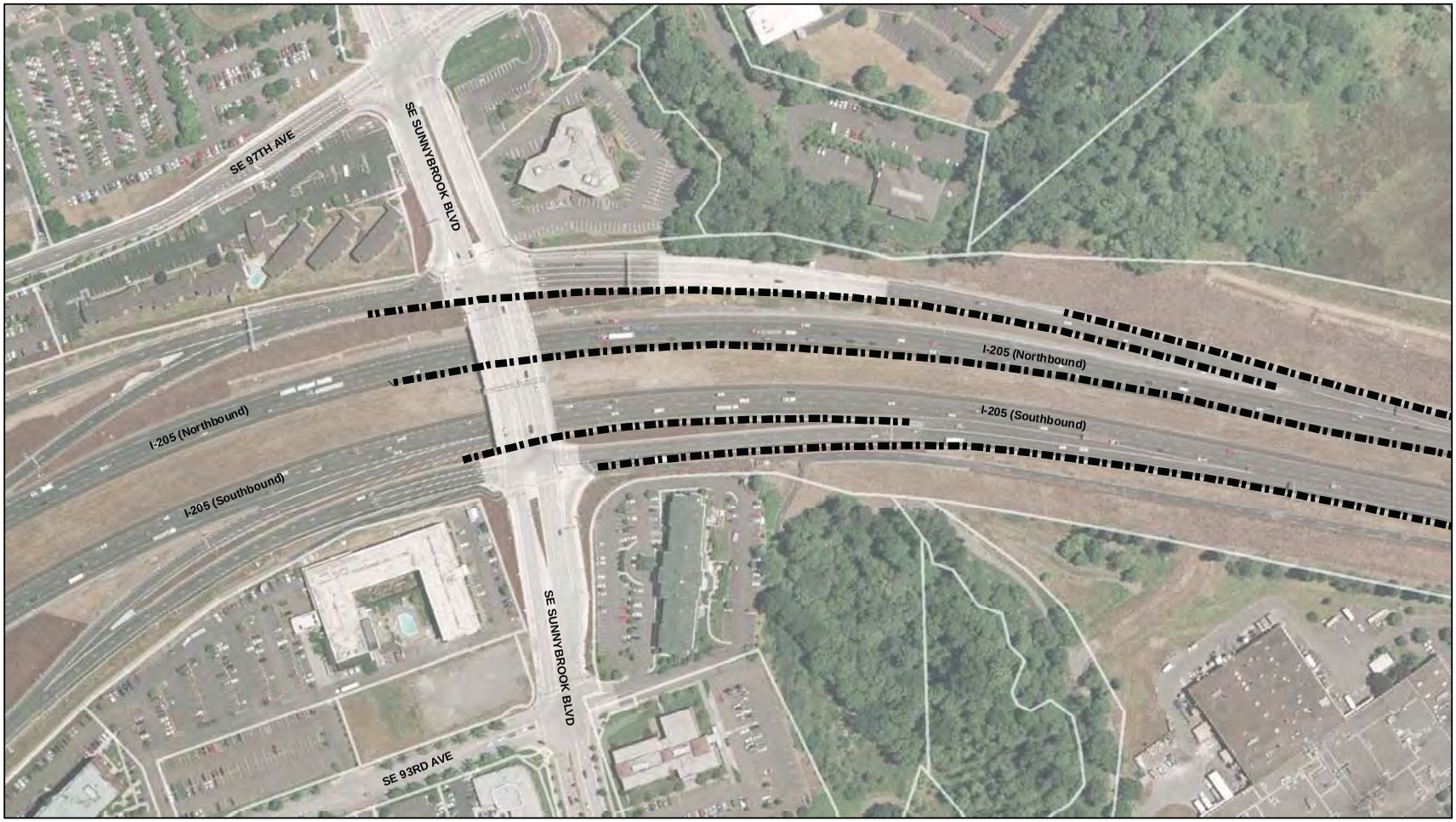

200 0 200 Feet

Sources:
ODOT and Metro, Portland OR

Legend

Bioslopes

Figure PA-45C

Additional Water Quality Treatment Area #3

Sunrise Project, I-205 to Rock Creek Junction

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